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A Year in General Practice

by

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Having spent the half-dozen years since graduation in one or other 'whole-time' occupation, the last four of them teaching, the writer decided that it was time to sample the pleasures or pains of general practice. Some of his reactions may be of interest to others similarly placed, who perhaps at one time or another have contemplated a like incursion. The following remarks are recorded, either because the author believes that they represent a viewpoint on the subjects discussed contrary to standard teaching on such subjects; or because it is considered that certain practices mentioned may be worthy of more than local renown.

The writer has pleasure in acknowledging the advice and encouragement received from the practitioners whom he served with varying success; in chronological order: Mr. T. N. Gold, Mr. J. Cochrane-Dyet, and Mr. A. H. Adams; and also the help of their Assistants, which was considerable. Perhaps it may not be out of place also to pay tribute to the British farmer, whose ready and intelligent co-operation lightened many an arduous task.

Of the 'Big Four' diseases of livestock the only comment the writer has to offer on tuberculosis is that it is strange that, in general, the test applied by the veterinary practitioner is judged by some remote official. And as regards Brucellosis, that he has been most favourably impressed by the results of vaccination with the Ministry of Agriculture's vaccine. The writer was also favourably impressed by the Panel Scheme where he saw it in operation in an extensive dairying practice. Its value seems to be out of proportion to the immediate reward, which is in some cases meagre, because of the greatly increased contact which it brings between veterinary surgeon and farmer. But in its present form it seems less suited to areas where farms are small, or where milk production is of slight or secondary importance. Perhaps a more generous scale of remuneration in such situations would increase the popularity and scope of this valuable experiment.

MASTITIS

The clinical distinctions between streptococcal and staphylococcal forms are well known, and also the efficacy of sulphonamide treatment in the former. But cases occur in which the syndrome is mixed, particularly in cows in full milk; in these the writer found that it was worth while exhibiting sulphonamide first, as, if a satisfactory response is obtained to this drug, a good chance of complete clinical cure exists in early cases; whereas oral formalin, or intramuscular staphylococcal toxoid, give as a rule only suppression of symptoms with more or less loss of gland tissue. In the writer's hands, formalin has proved the most useful drug; if not saving many quarters, at least it seems to prevent many fatalities. Frequent stripping is advised in all cases, preceded and followed by bathing with warm water, and appears to be beneficial. The author is doubtful of the practice of infusing highly inflamed cases of staphylococcal mastitis with flavine solution; at least on theoretical grounds it would seem that the acute capillary damage in such cases must leave the risk of turning a local into a systemic infection. But it may be better to keep an open mind on this issue in view of the undoubted value of infusion in dry cows, and the experiments at present proceeding with infusion of penicillin.

Although the writer has been called to, and has sutured numerous torn teats in a manner not obviously less skilful than the general run of such work, it has been his observation that any good effect has been psychological, and exerted mainly, if not entirely, on the owner. Where such operation promises to be at all lengthy it seems preferable to cast the cow. On the other hand, in removal of teat obstructions a satisfactory result seems to be obtainable except where the 'pea' is large and highly placed.

INDIGESTION

The writer has found the probang most useful in all cases of choking and tympany of the rumen in the bovine; it is usefully supplemented, but certainly not supplanted, by exhibition of the choline purgatives. The animal seems to have more difficulty in swallowing the instrument if a mouthgag is used, and its entry into the trachea, with possible damage to the lung substance, is thereby facilitated. It has the great advantage when successfully used of giving immediate relief of the condition, and is therefore more popular with owners than the use of drugs, which may be more modern, but are certainly slower in action, and not always ultimately more efficacious. In impaction of the rumen, in addition to the usual purgatives, massage of the abdominal wall over the rumen frequently applied by the attendant has been found helpful; in the author's experience it shortens the duration of these cases which seem to become very troublesome if prolonged. In a few cases of this type where general depression was more marked than is customary, rectal examination disclosed the presence of unusually hard faecal matter in all the bowel within reach. All these cases had a fatal termination. In impactive colic in the horse, where an immediate result is desired, but not obtained by the use of carbachol, it has been found that removing the faeces manually from the rectum will sometimes set up normal defaecation.

Warm soap and water enemata in small animals, apart from being of considerable therapeutic value, not merely for the relief of constipation, but occasionally also in cases of posterior paralysis, are often appreciated by owners who doubtless have made several efforts to obtain purgation by the use of pills, etc., before presenting the animal for skilled advice. The writer has also found that in those cases where the animal is refractory to the use of the arsenic-arecoline taenicides, when followed by an enema these often produce the desired result.

MILK FEVER

In cases of milk fever in the larger breeds the author gives as a routine measure, 3½ oz. calcium boro-gluconate intravenously, and a similar amount subcutaneously, no matter what the condition of the animal. This dosage has been adopted because it gets the animal on her feet in a short time in almost all cases. Merely relieving the condition to the extent of getting the animal on her brisket is not enough; the longer the cow is down, no matter how excellent her general appearance may remain, the more remote her chances of ultimate recovery. The time to get her up is the first time she is seen; four times the above quantity of calcium administered over a period of as many days seems to be less effective than the above suggested initial seven ounces. The same remarks hold good in the more obstinate condition of calcium deficiency occurring without reference to parturition, and known in some parts of the country as 'grass staggers'; the latter term is of course applied by the laity to many conditions of quite different aetiology.

One case of the author's which responded to subcutaneous injection of magnesium sulphate, when first seen displayed only a propensity to lick the wall in front of her, and the rather wild expression characteristic of magnesium deficiency. One injection sufficed. A few similar cases were seen which sweated profusely, and in which defaecation was reported by the owners to be in abeyance, presumably due to cessation of peristalsis. In general, these also responded to one injection, but in one case, although when first seen the symptoms were unmistakably those of Mg deficiency, and the beast became normal soon after injection of one ounce of $MgSO_4$ in ten per cent. solution, yet when the writer visited the case next day symtoms of milk fever were evident.

As a histologist, the writer is aware of the difficulty of demonstrating sweat glands in the bovine, but sweating is an observable phenomenon in some circumstances.

Obstetrics

Although the present writer has had considerable experience in parturition work, gained, in the main, at unseasonable hours, he has not seen anything in this line which has not already been recorded. But he has noted that both parturition and sterility work are much more easily carried out in the smaller breeds; possibly this is a factor in the divergent opinions one hears expressed on the period at which diagnosis of pregnancy can be made, ease of recognizing tubal adhesions, etc. The writer has also felt that temporary sterility is more amenable to treatment by Nielsen's technique in Channel Islands cattle than in the larger breeds; is it possible that the amount of Lugol's solution generally used is more effective in the smaller uterus of the former? It would be interesting to have other views on this. Channel Islands cattle, too, seem more susceptible to necrotic vaginitis after calving; is this experience general?

In those cases of sterility in which there is a copious, thick discharge of uniform consistency, but not obviously purulent, *i.e.*, possibly a physiological rather than a pathological condition, the writer believes that he has obtained better results when he combined intramuscular injection of stilboestrol with uterine irrigation than when the latter was employed alone. But the number so treated was too small for satisfactory judgment.

Four out of five cases of complete eversion of the uterus in the bovine were treated successfully and without relapse. Spinal anaesthesia, and intramuscular injection of a pituitary extract were found useful adjuncts to replacement. Multiple local injections of pituitrin did not seem to be more effective than an intramuscular injection repeated during the operation if necessary. In the unsuccessful case, when it was evident that replacement could not be accomplished, amputation was attempted; but the bowel had prolapsed into the everted uterus and was cut in the process of amputation, and the animal was immediately destroyed.

The following miscellaneous cases are recorded because they seeem to present certain unusual features.

Case I

Subject.—Cow alleged to be 'blown.' As grass was scarce at the time this report was discounted in advance. The owner stated that the beast had been perfectly well when milked that morning. When seen by the writer a couple of hours later she was standing rather stiffly, with head down, forefeet in the position of an acute pneumonia case, and breathing was very fast, but not markedly laboured; the coat was patchily wet and body surface warm; temperature raised to 103° F. Enquiry elicited the information that the animals had been treated with some proprietary warble-fly dressing, and that in the case of this particular beast the owner had rubbed the substance into an abscess which had recently burst. A diagnosis of 'shock' was made, symptomatic treatment applied, and the animal was normal a few hours later.

Case II

Subject.—Golden Spaniel bitch with first litter of pups. This animal was suffering from parturient eclampsia; 200 c.c. calcium boro-glucinate from a bottle prepared for use in cattle, was injected subcutaneously and had to be repeated next day; the solution was evidently too strong as sloughing of the skin over one of the areas of injection took place about seven days later, but healing occurred satisfactorily. When first seen, the owner was questioned as to the possibility of this bitch having metritis, but a negative reply obtained. A couple of days later, however, a call was received to attend this case again; vulvar discharge and a high temperature with depression were then evident in the bitch, and all six pups had ceased to suck and were showing marked torticollis. A diagnosis of metritis was made in the former, and meningitis in the pups; one of the latter was practically moribund and was destroyed. Oral and parenteral sulphonamide medication of bitch and pups was commenced and an uneventful recovery of all parties ensued in the course of a week.

Case III

Subject.—Mare, draught, five days foaled. Her off fore was swollen from foot to elbow but bearing weight. The mare was seen moving and no suspicions were aroused; a diagnosis of lymphangitis was made and appropriate treatment ordered. A call was received to the same case ten days later when it was obvious that the mare had 'dropped shoulder.' Recovery did not ensue.

Case IV

Subject.—Siamese cat. The history was that the cat had been caught and had spent several hours in a rabbit trap. Marks on the limb were consistent with this and radial paralysis was present. Local treatment was applied to some surface wounds, and a waiting policy advised in regard to the paralysis. A week later the owner expressed the opinion that recovery was impossible, but by this time movement had already returned in the elbow region, and the advice was repeated. Complete recovery occurred subsequently.

Case V

Subject.—Dog, black and tan smooth terrier type, about 18 months old. The owner complained that this animal would not eat and was failing in health; the dog was in fact unusually emaciated. Severe labial necrosis of both cheeks was present and a diagnosis of Stuttgart disease was made. Administration of a polyvitamin tablet three times daily was ordered. Five days later appetite was still in abeyance and no improvement could be noted. As the owner did not seem very interested in persisting with the case, destruction was suggested; no definite instructions were received, however, and the dog was still given the pills. Three days later the attendant stated that the patient had commenced to eat, and on examination, small haemorrhages at the borders of the necrotic areas in the mouth were evident, suggestive of repair. When last seen the animal was considerably improved and it seemed probable that recovery would eventually be complete.

Case VI

Subject.—A cat, brought in late at night and with about four inches of rectum prolapsed. Instructions were received through an intermediary and were nebulous in character; the animal was put in a cage over night pending clarification; in the morning the prolapse had been returned completely, presumably by the animal having licked it during the night.

Cases of Infectious Feline Enteritis Type

Several cases of this type were seen, and the symptoms were always those of great depression and pyrexia. A diagnosis of infectious feline enteritis was made in all cases although bloody faeces were not always evident, presumably because these animals were seen early in the disease. Evidence of its infectious nature was suggested by the sudden onset, and in one case, the original patient to which the writer was called was dead on arrival—here there had been a bloody anal discharge and vomition—and four other cats on the premises went down with a similar condition in a matter of days. All of these cases were successfully treated with tablets of M. & B. 693, one tablet, followed by a half tablet every four hours. Recovery took place within three days in the majority of cases and was apparently complete. Many of these cases seen by the author in the pre-sulphonamide era proved refractory to symptomatic treatment, and many were fatal.

In conclusion, the writer's period in practice has confirmed him in the belief that this experience is invaluable, particularly to those engaged in teaching; and if such opportunities were available periodically to teaching members, the profession as a whole, and particularly the rising generation, would benefit inestimably.

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The Relation of Husbandry to Animal Health*

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(*Continued from page* 163)

Discussion

The President, Mr. F. Blakemore (Cambridge): We have listened to an interesting paper on a most important subject which, unfortunately, is one which is perhaps not too easy to define and in order to obtain as much information as possible from the discussion I would suggest that particular attention is given not so much to the effect of environmental conditions such as soil and climate upon health but to the consideration of how agricultural policy and the customs on individual farms affect the disease position. There are many examples with which we are familiar. B.W.D. became a problem with the use of incubators, while "gapes" disappeared with the introduction of artificial methods of brooding. Pulpy kidney in lambs is related to the level of production and swine influenza is common when ventilation is inadequate. I will now call upon Mr. G. S. Muir to open the discussion.

Mr. G. S. Muir (Stowmarket; dealing with cattle and sheep): I congratulate Professor Worden on his very able paper, which emphasizes a much more positive approach to the problem of Animal Health, than the merely negative one of attempting the cure or alleviation of disease after it has done what damage it can. I shall not attempt to deal with it in a critical manner and I have no particular questions to ask Professor Worden, but as a practitioner I will try to bring forward some particular instances of disease conditions consequent upon faulty husbandry in order to stimulate discussion.

Professor Worden mentioned periodic fluctuations in numbers caused by epizootics of unexplained origin. Can this be caused by a gradual lowering—a sort of "wearing out"—of immunity in succeeding generations concurrent with the presence of carriers among the older members of the colony or herd, followed by the epizootic, the survivors then having a high degree of immunity? This is the kind of cycle which appears to happen in a herd of cattle affected with contagious abortion in which, following a bad outbreak, a fairly good herd immunity is established for some years, until again there is a very bad outbreak.

Professor Worden then brings in the ability of modern rapid transport to import the diseases into areas previously free of them. This is now obvious and must lead to a whole new set of preventive regulations. I need only mention such diseases as those carried by certain mosquitoes, now unknown in this country but easily capable of being introduced by aeroplane. He mentions in passing the ability of cattle in the tropics to prevent a hyperthermal rise in temperature. I remember a friend of mine telling me that when he was in Nigeria the testing of cattle for tuberculosis by the temperature reaction was not practical as all the animals ran temperatures up to 105° by about 5 p.m. daily.

Professor Worden also mentions a breeding policy producing deformed stock. I recall meeting a series of cases of lethal deformity in calves, which were born or delivered with great difficulty, with a form of anchylosis of the joints usually in a position of flexion, when extension of the limbs was impossible. I was able to trace the breeding of these animals, which occurred on different farms, and eventually established that it was caused by a recessive Mendelian factor which originated in a single bull several generations back. Stenson reported the same thing in sheep about 16 or 17 years ago. I found this first in Friesian cattle, but met it again in a herd of Shorthorns and again in Herefords. The Institute of Animal Genetics under Dr. Crew at Edinburgh told me that this was the first instance reported in a breed with no Continental origin.

Passing on to nutrition, I have for long been very much interested in what I term "deficiency diseases," not only the well known ones such as "pine" or "teart," but also the less well defined and often more temporary conditions. I recollect a flock of sheep having a very high incidence—as high as 10 per cent.—of prolapse of the uterus following lambing and I suspected a possible calcium deficiency on the analogy of the comparative frequency of prolapse and milk fever occurring simultaneously in cows. The ewes were being folded on nothing but sugar beet tops. The same flock had no trouble in other years when a mineral supplement was fed and a better ration adopted. On the same farm later several colts had a form of joint trouble, manifested by contraction of the flexor tendons and severe knuckling of the fetlocks until they walked on their toes and became quite club-footed. They gradually improved with minerals added to the diet. In America it has been suggested that tympany in cattle may be due to calcium deficiency and calcium infections have been used as treatment with some success.

As for calves, I think it is now generally recognized that colostrum is essential to the health of the newly-born calf, but I should like an explanation, if Professor Worden can give me one, of an outbreak of a fatal septicaemia in newly-born *heifer* calves I met with, in which the heifer calves were born apparently healthy but died within about twelve hours unless they received an injection of *B. coli* antiserum, which never failed to save them if given within two to three hours of birth. The bull calves were not affected, and none was affected the following year or since.

I now come to a point where I join issue with Professor Worden when he speaks of seasonal variations in nutrition in our "hard" climate. The variations I do not deny, but that ours is a hard climate I should emphatically repudiate. It seems to be a strange practice in our newspapers to make cheap gibes at the English climate, which I might add do us no good in a national sense. Curiously enough, little is ever said of the Scottish weather; the unsurpassed character of the emigrants from that land obviously precludes any adverse comment. But seriously, where, except in a very few exceptionally well favoured spots, in the whole wide world shall we find a land where the cattle graze, or at any rate can lie out practically the whole year round, where wholesale crop failures never occur, where droughts necessitating wholesale slaughter of livestock are unknown, where hail insurance of corn crops is not a routine method of protection, where wheeled traffic can go all the year round with scarcely ever the necessity for long periods of reversion to sleighs, and vegetables can be gathered in every month of the year, where the addition of vitamin D to the diet is beneficial but not *absolutely* necessary to prevent clinical rickets in all animals on a wholesale scale, where we never have drought conditions leading to phosphorus deficiency, and where sunstroke is not the certain result of failure to take precautions?

No gentlemen, as a scientific society let us take a wide view, and looking over the world we cannot call ours a hard climate. Of course I do not deny that we have a winter season and Professor Worden's observations are of great interest, and anything that can be done to supplement winter rations to supply the optimum requirements must be highly beneficial, especially to the foetus to be born in the spring.

Professor Worden's remarks on ley farming are very interesting and we should do well to study them. I am glad to say that I have not yet observed any of the conditions mentioned by Gould in numbers sufficient to lead me to incriminate the quality of the pastures.

Mr. F. T. Day (Newmarket; dealing with horses): It is very interesting to observe the troubles that are found in the thoroughbred horse, where selection for breeding has been made almost entirely on racecourse performance without much regard for other factors, and where a continuous high plane of nutrition has been the aim in the feeding of such livestock to hasten early maturity.

First the selection on performance has resulted in a practically horizontal pelvis, and this, in turn accounts for the common condition in the thoroughbred mare of air being sucked into the vagina and causing sterility.

The great depth of the chest in the foal is a primary factor in those not uncommon cases of fractured ribs and bruised heart of the foal at parturition, which frequently have fatal results. A secondary and exciting cause of this trouble is the all-too-frequent habit of stud grooms to pull foals away at foaling instead of letting the mare push the foal out. This pulling brings the protecting elbows away from the chest and exposes the latter to damage.

It is a recognized fact that a high plane of nutrition together with deficiencies of calcium and vitamin A and D is more likely to produce symptoms of rickets than a similar diet where a low plane of nutrition is fed; young thoroughbreds are fed on a high plane of nutrition, and where hay is not of the best quality and grazing is scarce "ricket-like" conditions develop. Cases are seen where it is difficult to attribute these conditions to a direct deficiency and one wonders to what extent parasitic infestation may affect the assimilation of some essentials in the diet. One must also bear in mind the possibility of a genetic factor, as there is some evidence to suggest a greater incidence in some families. Two common clinical conditions are met of this type: enlargement of the lower heads of the radius and tibia, and knuckling of the fetlock joints, often occurring together.

It has been found that there are no primordial follicles in the ovary of the mare but that follicles are continually being created by the epithelial cells of the ovary. During the winter many mares

* Discussion by Eastern Counties Division, N.V.M.A., of paper (published in our last issue) by Alastair N. Worden, M.A. (CANTAB.), B.SC (LOND.), M.R.C.V.S., A.R.I.C., Department of Animal Health, University College of Wales, Aberystwyth.

go into anoestrus and at this stage there are no follicles at all in the ovary. In the spring there is an orgy of follicle development and a gradual return to normal oestrus; many cases occur each year of mares not coming into oestrus during the breeding season, and some of these cases are due to the lateness of follice maturation. It would be interesting to know whether this is a nutritional trouble and if so whether it is caused by a low general level or by lack of specific substances.

I was interested to read the remarks in the paper about nicotinic and ascorbic acid in the diet of young calves and should appreciate the speaker's advice about their use in poor weakly foals, which so often became the prey of other troubles in the first few days of life, and also his experience as to the best method of administering these.

There was an interesting article on riboflavin deficiency and its role in the causation of periodic ophthalmia; I should like to have Professor Worden's opinion about the possibility of prevention of this condition by feeding riboflavin and also the best source of the vitamin to feed.

In the life-cycle of the red worms of the horse the most damaging larval stage to the horse itself is the time spent by the developing larvae in the mesenteric arteries. Is it likely that certain specific nutritional substances in the horse's diet could influence the rate of development of the larvae and so in turn affect the time they spend in the arteries and consequently prolong or lessen the amount of damage done in this part?

The President, in introducing Mr. Swann, then commented upon a recent nutritional experiment with pigs in which a group receiving bread as the sole source of nutriment had developed over-large stomachs. Deaths had occurred from *Cl. welchii*, Type A, infection, presumably as a result of a consequent alteration in the intestinal microflora.

Mr. H. C. Swann (King's Lynn; dealing with pigs) congratulated Professor Worden on his excellent paper and remarked how pleased members of the Eastern Counties Division were to welcome colleagues who were once members of the Division and also to hear from them details of the work which they were carrying out in their new spheres of life. Mr. Swann continued:—

So far as the influence of husbandry on animal health is concerned, I feel that this subject is so vast that not only a single textbook but many volumes would be necessary to ventilate fully the veterinary profession's ideas and experiences in this field. Professor Worden in his paper has compiled several lesser-known facts based on recent experimental work to which he has provided many references. It is therefore difficult for a clinician to offer much constructive criticism in this direction. I noticed particularly, however, that Professor Worden stressed that the relationship between feeding and disease is simple only in the case of the deficiency conditions and the toxicities. It is my experience that disturbances in nutrition are a constant source of trouble to the clinician; problems in animal health due to the feeding of incorrect quantities or types of food and also following sudden changes in diet, particularly in pigs, are almost a daily occurrence in my practice. Lamont & Shanks, working in Northern Ireland, several years ago described a condition in pigs which they called "oedema of the bowel." In my opinion this disease, which is of dietetic origin, is an extremely common one, yet seldom recognized, and is of far greater importance, for instance, than disease due to *Salmonella suispestifer* or associated with nicotinic acid deficiency. The symptoms of oedema of the bowel are staggery gait, oedema of the eyelids, giddiness or inability to rise, followed by death within about 24 hours. Frequently death is so sudden that no symptoms are seen by the attendant. In particular I have noticed that the disease is more or less confined to recently weaned pigs and it is always the best pigs of good litters which are affected. *Post-mortem* examination usually reveals thickening of the bowel wall due to oedema, or more frequently gelatinous-like oedema in the folds of the colonic mesentery. If the *post-mortem* examination is delayed the only findings present are excessive fluid in the peritoneal cavity due to liberation of the oedema. In most cases the stomach is distended with food. I believe the condition to be due to disturbance in the diet associated with the change over from weaning, although it is not clear what is the exact factor responsible. Temporary starvation, administration of a purgative and subsequent feeding with a more easily digested food always prevent further cases of the disease. It has been suggested to me that the disease is a type of anaphylaxis, but parenteral administration of adrenaline, in my experience, is of no value in treatment.

I now would recount an experience I had recently when an owner moved 40 store pigs aged ten weeks from a warm, well-ventilated loose-box to a cold, wet, draughty type of Scandinavian pig house. To provide ventilation the owner had removed one side of the piggery and as a result the pigs were submitted to an excessively cold, wet and draughty environment. Within three days disease had occurred and in fact over 20 pigs died within the next 48 hours. A diagnosis of piglet influenza was made and further investigation by Mr. Blakemore of the Institute of Animal Pathology, Cambridge, revealed that death was due to virus pneumonia. So far as housing is concerned, I would draw the attention of members present to the Farm Buildings Report which has recently been published by H.M. Stationery Office and which constitutes the findings of the Special Committee on Farm Buildings appointed in 1943 by Mr. Hudson the then Minister of Agriculture. In the Report it is stated that ". . . of the characteristics of buildings by which the comfort of animals is affected little is known." I regret that this Committee did not see fit further to consult the veterinary profession in its deliberations. I am sure much valuable data would have been forthcoming to the benefit of agriculture in general if this step had been taken.

Amongst the recommendations made by the Farm Buildings Committee is the setting up of an Advisory Service to carry out extensive enquiries and experiments in matters relating to farm buildings. It is suggested that the advisory panel should consist of architects, builders, landowners, agents and farmers. No mention is made of veterinary representation on such a panel and this is all the more surprising in view of the emphasis laid by the Committee throughout their report on the intimate relations of housing on animal health. I hope that Professor Worden and men of his calibre will bear in mind this important omission of our profession and that they will sponsor papers and addresses on the subject to ventilate the views of our profession and to remind the agricultural community of our rightful place in matters of this kind.

We are frequently hearing it expressed in our profession that we have not been consulted in matters which appear to be our very birthright. In particular I have in mind problems associated with meat inspection, dairy hygiene, the National Advisory Service, and so on.

A member of the Royal College of Veterinary Surgeons is expected to be competent in a vast field: the field is in fact, in my opinion, so vast that such complete competence is beyond human endeavour and unless veterinary education is directed along channels which will permit and recognize various degrees in specialization, I visualize that as a profession we shall eventually come to be described as jacks of all trades and masters of none.

Mr. E. M. Mackay (Ipswich; dealing with poultry): It is with some diffidence that I undertake the task of creating a discussion, from the poultry aspect, on so excellent a paper by such a keen worker as Professor Worden and I feel the matter could have been placed in more competent hands. I therefore will content myself by first expressing my great interest and appreciation of the points raised by Professor Worden and I cannot but agree with his conclusions.

In the poultry industry it is becoming increasingly obvious that good husbandry and a controlled nutrition are absolutely essential for successful poultry-keeping. I am inclined to emphasize the great importance of good poultry husbandry in the control of specific and non-specific diseases which are, in the main, the cause of the great losses sustained by the industry. In the past we have had the example of the losses sustained by the industry in 1923-1936 through disease and other causes and it is beyond doubt that these losses could have been considerably controlled if a sensible poultry husbandry had been practised. I therefore advocate a closer contact between the industry and (as a current periodical has it) "the little known and unadvertised research worker," and I am sure he will find the average poultry-keeper a keen disciple.

There are one or two conditions I feel require consideration, such as the resistance of certain breeds to B.W.D. and blue comb disease, the processes leading to the condition of so-called six-day disease and, from the dietetic side, the utilization of swill and concentrator plant products and the conditions that can result from their use.

I consider that a great deal of research is required in feeding-stuffs as war-time foods and improvizations have considerably upset preconceived ideas of dietetics and as the present-day bird compares in every way favourably with the pre-war type. Whether this is due entirely to the severe culling practised of necessity in the war years, or the survival of the fittest, it is difficult to say. It is true we have had an extra deficiency condition or two thrust upon us but progress always discovers something new—or old—and gives a name to it and we are content.

With regard to farm rotation and poultry I consider it is rather unfortunate that more farmers do not employ the aid of poultry in the field rotation. In two big farms in East Suffolk the farmers have made arrangements with poultry breeders to follow their field rotation throughout the year and have supplied the poultry-keeper with a house and such help as required to move houses, etc. The arrangement has proved satisfactory for the parties concerned and the general health and appearance of the birds are excellent.

In conclusion I should like again to thank Professor Worden for a very interesting paper.

The Reply

Professor Worden thanked the President and speakers for their kind reception of his paper and stated that he had yet to participate in more interesting Divisional meetings than those in the Eastern Counties. In reply to Mr. Blakemore's point, he felt it was difficult to try to split up environmental factors into those which seemed of immediate practical importance and those which seemed more remote. While due attention was now being paid to internal balance the equally important question of external balance was usually lost sight of. Quite recently he had helped Mr. Blakemore to investigate a variety of pathological and nutritional disturbances in a dairy herd in which the real factors were quite clearly overcrowding and inadequate feeding, and in which trouble abated each year when the grass came round again.

Mr. Muir might not agree that our winter was hard, but he could not deny that it was long or that it constituted our gravest husbandry problem. Despite the other disadvantages of the frozen North the larger fauna were able to accumulate immense reserves of vitamin A, as his colleague A. W. Davies had recently confirmed. His views upon cycles in disease were interesting and served to emphasize the need for collaboration by pathologists in wild life studies. His experiences with Nigerian cattle reminded the speaker of Professor W. C. Miller's account of another physiological discrepancy in tropical cattle—the very high fat content of the milk. The experience with sugar beet tops was due presumably to binding of calcium by oxalate. Incidentally, he would like to enter a plea for the confirmation by chemical analysis of suspected metabolic disorders and for the avoidance of biochemical terms to designate unconfirmed cases diagnosed on clinical grounds. Recently there had appeared in *The Veterinary Record* reports of "hypocalcaemia" in mares without satisfactory evidence that such a biochemical lesion was in fact present. The different susceptibility of the newborn bull and heifer calves to early death was remarkable and reminded him of Mr. Blakemore's finding of a sex difference to phosphorus deficiency in bovines and of the clinical observation that cows were sometimes able to throw off an infection when they came into heat. The last was in keeping with recent findings that oestrogenic substances possessed bactericidal properties.

In answer to Mr. Day it has been demonstrated that calves were unable to synthesize B vitamins during the early post-natal period, due presumably to the fact that the ruminal microflora had not become properly established. It was quite conceivable that the caecal microflora of the foal also took time to establish itself, although it seemed from recent American work by Pearson and his colleagues that the horse even when adult was unable to synthesize all its B vitamin requirements. Nicotinic acid (or preferably nicotinamide) and other members of the complex could be given either by capsule or parenterally, but a more practical solution was the feeding of brewer's yeast, which had long been advocated for "backward foals." There was no evidence concerning the exogenous ascorbic acid requirements of the foal but, if needed, this substance might have to be administered parenterally to avoid destruction in the alimentary tract of the equine. Mr. Day was probably referring to the paper of T. C. Jones, F. D. Maurer & T. O. Roby (*Amer. J. vet. Res.* 1945. **6.** 67-80: "The role of nutrition in equine periodic ophthalmia"). These workers had drawn a comparison between the lesions of equine periodic ophthalmia and those of riboflavin deficiency in dogs, rats and men. They had also found wide variations in the riboflavin content of different samples of hay and that the ascorbic acid content of the ocular fluids, but not of other tissues, of affected horses was lowered. The ocular histopathology of ariboflavinosis in man and experimental animals was not too easy to assess and this latest hypothesis relating to equine periodic ophthalmia must await further studies. The occasional precipitation of a mild form of azoturia in horses in training when suddenly worked faster after having been worked at one pace was presumably due to their high nutritional status and good muscular tone. The condition in cart-horses usually occurred when they were first worked after a rest period during which the rations had not been cut adequately. It was usually assumed to be associated with excessive muscular storage of glycogen. Mr. Day's hypothesis concerning strongylosis was not so fanciful as might at first appear. There was evidence that the developmental rate of one of the endoparasites of the guinea-pig was retarded by ascorbic acid deficiency in the host. The differences between thoroughbred and other horses were interesting and members might like to know of another difference very recently described by two workers in New York (J. Macleod & E. Ponder. 1946. *Science*, January 18th. **103.** 73: "An observation on the red cell content of the blood of the thoroughbred horse") who had reported significantly greater R.B.C. counts and haemoglobin levels, but lesser mean corpuscular haemoglobin values, as compared with cold-blooded horses.

There had been a report from the U.S.A. (H. Selye. 1943. *J. Amer. vet. med. Ass.* **103.** 140-143) that sodium chloride even as dilute as in normal saline could cause a syndrome similar to that of "blue comb disease" (also known as "pullet disease" and "X disease"), to which Mr. Mackay had referred, while a German worker (M. Rindfleisch-Seyforth. 1944. *Deuts. Tierarztl Wschr./ Tierarztl Rundschau.* 52/50. p. 11) had referred to the production of renal gout in poultry as a result of the ingestion of quite small quantities of common salt. Mr. Blakemore and himself had found that whereas 0·8 and 0·9 per cent. NaCl in place of drinking water caused death, with severe renal and other lesions, 0·7 per cent. did not do so. So far as "six-day disease" was concerned he felt that the most significant finding was that made by Mr. C. A. McGaughey at the suggestion of Dr. E. Halnan, *viz.*, that newly hatched chicks died at about the sixth day if given drinking water only. There was abundant scope for investigating the fundamental nutrition of the young chick, including its carbohydrate metabolism. It had been shown that vitellectomy was a surgical possibility and he felt that the nutritional and immunological status of survivors would repay study. Before leaving poultry he would like to quote the words of their Poultry Manager, Mr. Sydney Jackson, at a recent staff conference—"Mortality can be very low indeed if a thing or two is known about culling!"

Mr. Blakemore's example had underlined the plea made by H. R. Davidson at a recent meeting on pig production held by the British Society of Animal Production, *viz.*, that nutritionists should not confine their attention to simple digestibility experiments but should turn their attention to the fundamental microbiological and biochemical changes accompanying digestion in the pig, just as Dr. J. A. B. Smith and his colleagues at the Hannah were tackling the problem in the cow. He had not yet encountered oedema of the bowel, said by Mr. Swann to be common in the Eastern Counties, but wondered whether this, rather than being the reverse of "bloat" as had been suggested, was not also hypersensitive or partly so in aetiology. He agreed with the remarks about housing and quoted an extreme example of bad design for which an architect without technical guidance had been responsible. So far as professional participation in husbandry matters was concerned it seemed that "The fault, dear Brutus, is not in our stars." The profession must learn to co-operate with non-veterinarians. There was, in his opinion, no doubt that a veterinary training was a great advantage to anyone engaged in original work connected with livestock but the way to make that appreciated was not to crowd behind a professional barrier and make sweeping claims it would be difficult to justify in practice and impossible to substantiate numerically.

In conclusion, he would like to thank them all again for a most interesting discussion.

BOVINE TUBERCULOSIS AREA ERADICATION IN SCOTLAND

In its issue of March 28th the *Farming News and North British Agriculturist* reports joint consideration by the Milk and Livestock Committees of the N.F.U. for Scotland of the schemes for effecting area eradication of bovine tuberculosis.

"While the Livestock Committee are in full sympathy with such schemes being pressed forward, they are concerned to safeguard beef interests as to the obligation for double fencing, the period over which eradication is to be achieved, the provision of corresponding inducement to beef herds to clear, and the position of pedigree beef herds. The Livestock Committee also share the Milk Committee's view that unmarked dairy reactors from clearance areas should not be allowed to pass into other areas. On this point, it is considered unfair to herd-owners in scheduled areas if reactors in such areas are to be branded while reactors in non-scheduled areas would remain unidentifiable. As strict equity in this matter is difficult to preserve, the Milk Committee agreed to the suggestion of the convener (Mr. W. Young), that they declare in favour of a slaughter policy 'once compulsory eradication became enforceable in respect to any scheduled area.' But the Livestock Committee of N.F.U. report that the Government do not favour a slaughter and compensation policy. The first scheduled area, it was agreed, should be regarded as experimental."

* * * * *

The inaugural lecture to the Institute of Meat will be given by Lord Horder on Thursday, April 17th, at a meeting to be held at the Royal Empire Society, London, W.C.2.

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Over £500 was collected by Plymouth branch of the R.S.P.C.A. for relief of Dartmoor ponies, which suffered badly in recent weeks.

CLINICAL COMMUNICATION

Treatment of Fascioliasis of Cattle and Sheep with a Suspension of Hexachlorethane and Bentonite

By

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BUNGAY

Fascioliasis does not normally occur in most parts of East Anglia, but it is endemic in certain localized areas. One of these areas is the Waveney Valley and this winter the incidence of the disease in this valley has been very high, particularly amongst cattle, and treatment of the stock had to be attempted. Because carbon tetrachloride is toxic to bovines we decided to try the effect of hexachlorethane. Olsen[1] found this substance effective against *Fasciola hepatica* in cattle and the same author[4] found it effective against the same species of fluke in sheep. In these two papers Olsen reviews the literature on the use of hexachlorethane for the treatment of fascioliasis of sheep and cattle in Germany, Hungary, Holland, Italy and Hawaii. It was first used in 1926 by Thienel[6] for the treatment of fascioliasis of cattle. Olsen[1, 2, 3, 4] gave it in the form of a suspension of hexachlorethane and bentonite in water administered as a drench and found that in this form it was safe and effective.

We decided to try this suspension and it was given as a drench by Wortley to cattle on a number of farms in the Bungay area. Both clinical improvement of the cattle and an increase in the yield of milk occurred after treatment. We were able to record egg counts done before and after treatment of 14 cattle to which this suspension was given and also egg counts done before and after treatment of 12 sheep infected with *F. hepatica* to which the same emulsion was given by Blakemore. To the sheep the dose recommended by Olsen[4], namely, 15 grammes of hexachlorethane, was given once only. Because the cattle were in very bad condition, the dose recommended by Olsen[1] was reduced by about a half. To five of the cattle (Series 1) this dose was given once; to nine of them (Series 1) it was given twice, the two doses being separated by an interval of eleven days. They ranged from 29 to 57 grammes, irrespective of the live weight of the cattle. The doses given to each animal are stated in Table I. The results of the egg counts on the cattle and sheep are given below.

Methods

The Suspension.—The following formula for and method of preparation of the drench is recommended by Olsen[1, 4] and has been used by us for the treatment of both the cattle and the sheep.

Hexachlorethane	500 grammes.
Bentonite	50 grammes.
White Flour	¼ to ½ teaspoonful.
Tap Water	750 c.c.

This mixture, says Olsen[4], contains about one part of hexachlorethane to two parts of the mixture by volume. The dose given is therefore easily calculated. There are, for example, 15 grammes of hexachlorethane in 30 c.c. of the mixture. The ingredients must be thoroughly mixed. Olsen's method of preparation of the suspension is to add the water slowly to the other ingredients while they are being stirred with a wooden implement. A final mixing was given by Olsen in an electric kitchen-mixer or by rubbing the wet material with a stiff brush through a 20-mesh brass or copper screen soldered in to replace the bottom of a bucket. We did not use either the mixer or the screen.

The doses of this mixture recommended by Olsen are (1) for cattle 20 c.c. (10 grammes of hexachlorethane) per 100 lb. of live weight; (2) for sheep 20 c.c. (15 grammes of hexachlorethane). Sheep will, however, tolerate twice this dose and better results were obtained by Olsen when he gave 60 c.c. To all animals the mixture is given as a drench and they need not be fasted either before or after treatment.

For the convenience of those who have no facilities for measuring in grammes and cubic centimetres, the following formula, given by Olsen[3] is recorded:—

Hexachlorethane	1 lb.
Bentonite	1½ oz.
White Flour	¼ teaspoonful
Water	25 fluid oz.

Each fluid ounce of this mixture contains about 18 grammes of hexachlorethane. The doses used are 6¼ fluid oz. for adult cattle, irrespective of body weight and 3¼ fluid oz. for calves of three months old. Olsen[3] did not give the drug to calves younger than three months old (*see also below*).

Egg-Counting Method.—We have tried various methods of counting the fluke eggs, but have found that Olsen's[4] method is the quickest and best. It is as follows:—

A 300 c.c. flask is partly filled with 0·4/N sodium hydroxide solution and 10 grammes of sheep faeces are put into it. The flask is allowed to stand overnight. Next morning the flask is shaken vigorously to break up the faeces and is filled up to the 300 c.c. mark with 0·4/N sodium hydroxide solution. A sample measuring 7·5 c.c., containing 0·25 gramme of faeces, is then put into a 15 c.c. centrifuge tube which is filled up with sodium chloride solution with a specific gravity of 1·2. After centrifugation on a hand centrifuge for ten or twelve turns of the handle, the supernatant fluid is withdrawn and the process is repeated until the supernatant fluid is clear and not coloured. We found that centrifugation three or four times was sufficient to accomplish this. The deposit is then passed through an 80-mesh screen into a counting chamber made by ruling parallel lines 3 mm. apart on the bottom of a 70 mm. Petri dish. The number of eggs counted in the 0·25 gramme faeces used is then multiplied by four to give the number of eggs per gramme. The eggs were counted by us by diluting the deposit and distributing it inside squares made on large slides with a wax pencil and we did not find it necessary either to pass the deposit through a screen or to leave the flask overnight before the sample was taken from it.

The method used by Olsen[1] for the examination of cattle faeces was similar, but the eggs in 30 grammes of faeces were counted. We also used this amount of cattle faeces. Olsen[1] counted the eggs in 2·5 c.c. samples of the emulsion of cattle faeces, *i.e.*, in 0·25 gramme of faeces. We counted the number of eggs in 7·5 c.c. samples, *i.e.*, in 0·75 gramme of faeces, multiplying the result obtained by four and dividing it by three to obtain the number of eggs per gramme of faeces.

Results Obtained at Bungay and Cambridge

Cattle

The cattle treated by Wortley were extremely emaciated and anaemic. They had been grazing on the low-lying land near the southern borders of the Norfolk Broads. The land was damp and frequently flooded by the overflow from the River Waveney. No specimens of *Limnaea truncatula* were found, but the farmer said that the floods carried up large numbers of a snail about the size of a pea. If *L. truncatula* was present, it would have been washed into situations which would have led to heavy infestation of the pastures. Fascioliasis was prevalent in the valley and a *post-mortem* examination done by Wortley before treatment was given revealed flukes in the liver associated with hepatitis. The cattle were not examined for strongyle eggs before treatment, but an examination of them done after treatment showed that all were negative except one, the count of which was 100 eggs per gramme. According to the farmer, for two days after dosing the condition of the cattle seemed to him to be worse; but subsequently progressive improvement of the condition, appetite and milk yield were reported

Table I
Series 1

Cattle. Eggs per gramme in 30 gm. faeces counted by the Olsen method

Names of cattle	E.P.G. before treatment	First dose, in gms.	E.P.G.	Second dose, in gms.	E.P.G. in days after second dose		
					2	16	43
	8.1.47	16.1.47	17.1.47	27.1.47			
Nancy ...	75	49	29	49	0	4	3
Rake ...	10	35	No sample	35	0	0	5
Spot ...	5	42	17	42	0	0	0
Blue cow ...	0	42	6	42	1	0	0
	17.1.47	Dosed 17.1.47					
Tiny ...	5	29	No sample	29	0	0	1
Snowball ...	5	57	„	57	No sample	0	3
Gay ...	17	42	„	42	0	0	1
Iris ...	70	42	„	42	No sample	0	13
Jane ...	52	35	„	35	0	0	No sample

Series 2

Names of cattle	E.P.G. before treatment	Dosed gms.	E.P.G. in days after dose 3	10	15
	26.2.47	26.2.47			
Strawberry ...	40	35	0	0	0
Jennet	18	42	25	1	8
April	4	35	0	0	0
Loddon ...	6	35	0	1	6
Minerva ...	3	42	0	0	1

The records of the first four cattle listed in Series 1 of this table indicate that after two doses, separated by an interval of eleven days, each of which was about one-half of that recommended by Olsen[3], the egg count of eight out of the nine cattle was reduced to nil. Examination a month later showed, however, that the egg counts of only two of the nine cattle were negative at this time. The drug had, therefore, not eradicated the flukes, although a month after the second dose the egg counts of all the cattle were significantly lower than they had been before treatment.

Comparison of Table I with Table II, which gives the results of the egg counts on the sheep, suggests that a full dose of hexachlorethane would have produced better results in the cattle. Olsen's results noted above also support this view. He found that nine out of ten of his cattle remained negative after five months on infected pastures. Our cattle, on the other hand, were kept indoors during the period of their examinations by us. Egg counts a month after treatment of the five cattle in Series 2 of the above table are not yet available, because these cattle were dosed later than those of Series 1.

Sheep

So far 12 Welsh sheep have been treated. They are all undersized for their age and in poor condition. They came from a farm in mid-Wales and have been receiving injections of insulin. Eight of them were examined before treatment for strongyle eggs. Six of these eight had no strongyle eggs; one had 300 and one had 100 strongyle eggs per gramme. Each of them was given 30 c.c. of the suspension containing 15 grammes of hexachlorethane, in the form of a drench. The results obtained are shown in the following table.

Table II

Series 1

Sheep. Eggs per gramme in 10 gm. faeces counted by the Olsen method

Sheep No.	E.P.G. before treatment		Dose in gms.	E.P.G. in days after treatment 1	4	7	27
	24.1.47	28.1.47	14.2.47				
11	16	6	15	0	4	0	0
12	24	10	15	0	0	0	0
14	496	303	15	128	36	0	4
15	168	84	15	No sample	20	0	0
16	100	40	15	124	4	0	8

Series 2

Sheep No.	E.P.G. before treatment			Dose in gms.	E.P.G. in days after treatment 2	4	6
	15.2.47	22.2.47	1.3.47	1.3.47			
2	24	44	32	15	792	68	0
4	80	180	No sample	15	168	12	72
5	20	60	84	15	48	0	16
8	40	200	40	15	324	60	8
13	0	12	36	15	20	0	0
18	108	No sample	128	15	936	44	17
20	8	36	40	15	12	0	0

Counts done on the sheep of Series 2 on the 27th day after treatment showed that all these sheep were negative on this day, except No. 2, which had 12 fluke eggs per gramme.

This table indicates that six to seven days after a single dose of 15 grammes of hexachlorethane the egg counts of eight out of twelve sheep were negative. The egg counts before treatment of some of these sheep, notably Nos. 4, 8, 14 and 15, were high and the progressive reduction of the counts after the treatment is striking. The very high counts recorded for sheep Nos. 2, 8 and 18, two days after treatment are remarkable. We suggest that they may have been due to stimulation of the gall bladder by the drug and a discharge of eggs from it. A single dose of the drug appears to have had little or no effect upon the flukes in sheep No. 4 and only a limited effect upon those in sheep Nos. 5 and 18. The fact that nine of the twelve sheep had negative egg counts 27 days after treatment suggests that the flukes may have been eradicated from these sheep. These counts show that the egg production of the other sheep had been significantly reduced.

Summary

1. Fourteen extremely emaciated cattle and 12 sheep in poor condition, all of which were infected with *Fasciola hepatica*, were treated with a suspension of hexachlorethane and bentonite in water.

2. Egg counts showed that eight of the twelve sheep were not passing fluke eggs six to seven days after treatment with a single dose of 15 grammes of hexachlorethane.

3. Egg counts done 27 days after treatment showed that nine of the twelve sheep were then not passing fluke eggs. Three of them, however, which were negative six to seven days after treatment, were again positive 27 days after treatment although their egg counts had been appreciably reduced.

4. Egg counts showed that doses varying from 29 to 57 grammes of hexachlorethane given in two doses, separated by an interval of eleven days, produced negative egg counts in eight out of nine cattle 16 days after the second dose; and that a single dose varying from 35 to 42 grammes given to five other cattle produced, on the 15th day after treatment, negative egg counts in two out of these five animals. All these doses are approximately half the dose recommended by Olsen[2] or less than half of it.

5. Egg counts done 43 days after the second of the two doses given to nine of the cattle showed that only two of the nine were still negative at that time. The egg counts of all the cattle were, however, still appreciably reduced.

6. No serious ill-effects attributable to hexachlorethane were observed.

7. The number of animals treated is small and it has not been possible to check the results of the egg counts, the fallacies of which are well known, by *post-mortem* examinations. The results recorded, however, support those recorded by Olsen[1, 2, 3, 4] and others quoted by him.

8. Olsen's methods of preparing the suspension of hexachlorethane and of doing fluke egg counts are described and were adopted by us.

9. The available evidence suggests that the best effects of hexachlorethane will be obtained if it is given at least twice—once during the late autumn and again during the early months of the following year. The second treatment early in the year should not be omitted, because there will be, at this time, more mature flukes than immature ones in the animals and Olsen[4] has shown that, in sheep, adult flukes are less resistant than immature ones to hexachlorethane. Any treatment undertaken this year should, therefore, be given without delay.

References

[1] Olsen, O. W. (1943.) *J. Amer. vet. med. Ass.* **102.** 433.
[2] ——— (1944.) *J. Parasitol.* (Suppl.) **30.** 14.
[3] ——— (1944.) U.S. Dept. Agric., Bur. Animal Industry, Circular (Processed). (Abstr. in *Vet. Bull.*, 1946. **16.** 283.)
[4] ——— (1946.) *Amer. J. vet. Res.* **7.** 358.
[5] ——— (1944.) *J. Agric. Res.* **69.** 389.
[6] Thienel, M. (1926.) *Münch. tierärztl. Wschr.* **77.** 771.

[Since this paper was written, four more Welsh sheep, all of which were in lamb, have been given 15 grammes of hexachlorethane in the form of a proprietary dispersible powder which forms, when it is shaken up with water, a smooth and easily flowing emulsion. The results obtained were similar to those recorded above. Egg counts were done six, five and one day before treatment. Egg counts done two, five and seven days after treatment showed that three of the four sheep, whose egg counts before treatment averaged 26·6, 60·6 and 42 eggs per gramme respectively, were negative seven days after the dose. The other sheep, the average egg count of which before treatment was 188, had, on the seventh day after treatment, only four eggs per gramme.]

REPORT

[Departmental Committee on the Witnesses' Allowances Order. (1947.) H.M.S.O. Threepence net.]

The report has recently been issued of the Committee appointed by the Home Secretary in April, 1939, to consider the allowances payable out of local funds under the Regulations contained in the Witnesses' Allowances Order to persons attending to give evidence in indictable cases, and to report whether any amendment of the Order was necessary or desirable. After these meetings had been held the outbreak of war caused a suspension of sittings, which were resumed in March, 1946, with Mr. F. C. Johnson as Chairman in place of Sir John Moylan, whom he succeeded as Receiver for the Metropolitan Police District.

The numerous bodies laying evidence before the Committee included the Royal College of Veterinary Surgeons (represented by the late Colonel J. W. Brittlebank, the late Dr. Fred Bullock, Mr. G. P. Male and Professor Geo. H. Wooldridge) and the National Veterinary Medical Association (represented by Messrs. R. C. G. Hancock, H. C. P. King and T. L. Wright).

The Committee recalls that the Regulations dated June 14th, 1904 (as subsequently amended) were based on the Report (Cd. 1650) of the Departmental Committee of 1903 under the Chairmanship of Sir John Dorington, Bart., M.P. The Regulations of June, 1904, were amended in matters of procedure by further Regulations dated November 28th, 1908, and December 16th, 1908, but the amounts of the allowances authorized in 1904 remained unaltered till 1920. In that year, as a result of representations that these amounts were inadequate, further Regulations were made on March 1st, 1920, under which the maximum allowances payable to professional witnesses were increased by 50 per cent. and those payable to ordinary witnesses were doubled. These, with the exception of certain amendments made in 1922 in the allowances payable to Police Officers, are still the operative rates.

The Committee does not consider that the changes made in the law since 1904 justify any material alteration in the basis of payment, but they agree that some increases in allowances are necessary, accepting in certain cases the contention that such are justified by the changes in standards of remuneration and in the actual cost of living since that scale was fixed. The Committee considers that for ordinary witnesses the present scale of maximum allowances, which vary from 2s. a day for children or "paupers and vagrants" to 14s. a day for persons who produce certificates showing loss of wages up to that amount, is too low. It recommends that the rates should be increased to 25s. (of which 5s. should be in respect of subsistence) for ordinary witnesses who lose income by attendance, and to 5s. (subsistence only) to all other ordinary witnesses.

Professional Witnesses

The present Regulation (1) governing allowances to witnesses giving professional evidence is recapitulated, as follows:—

"There may be allowed to practising members of the legal and medical professions, for attending to give professional evidence, but not otherwise, allowance not exceeding the sums stated in the following scale:—

For attending to give evidence in the town or place where the witness resides or practises—

if the witness attends to give evidence in one case only, not more than one and a half guineas per diem;

if the witness gives evidence on the same day in two or more separate and distinct cases, not more than three guineas;

For attending to give evidence elsewhere than in any town or place where the witness resides or practises, whether in one or more cases, not more than three guineas per diem.

In this Regulation 'town' means Municipal Borough or Urban District; and 'place' means within a radius of three miles from the Court at which the witness attends to give evidence."

Here the Committee (paragraphs 10, 11, 12) makes the following welcome observations on the desirability of widening the scope of the Regulation:—

"The Regulation in its present form includes only practising members of the legal and medical professions. It is clear from the evidence received by the Committee that, of these, lawyers are very rarely called upon to give professional evidence. Both the General Council of the Bar and the Law Society, however, urged that the reference to lawyers should be retained, largely on grounds of the standing and the dignity of the legal profession. Witnesses on behalf of veterinary surgeons stressed the arduous nature of training and high qualifications required for admission to their profession and urged that they should be accorded the same treatment as doctors, though they agreed that veterinary surgeons do not give evidence in indictable cases as often as doctors. We understand that from time to time the Home Office have received similar claims on behalf of certain other professions, and some of the witnesses said that such claims were sometimes received by Taxing Officers, though no other class of professional men gave professional evidence as often as doctors.

"We are inclined to think that this Regulation might now be amended to include a general rather than a particular definition of those giving professional evidence. We were impressed by the case made on behalf of the veterinary surgeons, but we are not prepared to say that they belong to the only profession besides the medical and legal the members of which should receive the allowances payable to professional witnesses. At the same time we expect that in the future, as in the past, the great majority of professional witnesses will be medical men. The Dorington Committee recommended that the allowances in Regulation 1 should be payable to members of the legal, medical and such other professions as the Secretary of State might decide, but no other professions have in fact been added: the task of drawing up a list of this nature would present many difficulties and it would require constant amendment though we understand that an extended list is operated in Scotland. In these circumstances we submit the following definition of a professional witness and recommend that all who fall within the definition both as to their status and as to the evidence they give should be treated as professional witnesses and should qualify for allowance on the same scale, subject, of course, to the exercise of the discretion of the Taxing Officer within the maximum amounts allowed.

"The definition we propose is:—

'A professional witness means a witness who is a practising member of a profession, admission to which is subject to the passing of a qualifying examination, who in the ordinary practice of his profession acquires knowledge of the facts of the case before the Court and is called upon to give evidence as to those facts, or to express an opinion on such facts based on his general professional knowledge and experience.'"

Calculation of allowances to professional witnesses.—Among the points arising on the conditions governing payment of these allowances, the Committee recommends that allowances should be calculated on the basis of the time a witness is necessarily absent from his home or place of business or employment for the purpose of giving evidence: and that for this purpose half a day should be reckoned as four hours; it is, however, unable to accept the contention that a professional witness should receive a retaining fee for every day when he is warned that he may be required to give evidence, nor does the Committee think there is any justification for retaining the distinction in Regulation 1 in the rates of allowance payable as between evidence given in the town or place where the witness resides and practises or elsewhere. While the Committee is unable to accept a further claim made by the British Medical Association that different scales of allowances should be laid down for professional witnesses at Courts of Summary Jurisdiction and at Quarter Sessions or Assizes, it is of the opinion that the provision that a doctor or other professional man giving evidence on the same day in two or more cases may be paid an allowance within the permitted maximum for a whole day even though his attendance occupies less than four hours, should be retained. In the present Regulations there is no provision for the payment of a night allowance to a professional witness who is necessarily detained overnight, and though the evidence suggests that such cases are rare, it is felt that such allowance should be payable at the same rate as is recommended for ordinary witnesses.

As regards the amounts of the allowances to be paid, the British Medical Association and certain other witnesses have represented that the present amounts are not adequate in modern conditions, and that some increase is desirable. "We agree that some increase is justified," says the Committee, "and we recommend that a professional witness, who is necessarily detained away from his home or place of practice for less than four hours, should be eligible for an allowance of not more than fifty shillings, and if he is detained for more than four hours an allowance of not more than five pounds."

Expert Witnesses

The present Regulation 2 provides that there may be allowed to expert witnesses such allowances for attending to give expert evidence as the Court may consider reasonable, including where necessary an allowance for qualifying to give evidence. Witnesses were inclined to think that the present provision for payment of such allowances as the Court may consider reasonable works satisfactorily. A suggestion was made that a list of kinds of witnesses who could be considered expert should be drawn up but the Committee concluded that the difficulties in the way of drawing up a satisfactory list would be insuperable. It considers, however, that a general definition might be of assistance to Taxing Officers and submits the following:—

"An expert witness means a witness, otherwise unconnected with the case, who because of his special scientific or professional knowledge, or other special qualifications, is called to give in evidence his expert opinion, either based on facts, or on the result of examination of material or data, submitted to him for the purpose."

It was not regarded as practicable to lay down a scale of allowance for expert witnesses in criminal cases, and the amount to be paid should continue to be left to the discretion of the Court. As in the case of professional witnesses, it would be more satisfactory if a specific provision were made to cover payment of a night allowance to an expert witness.

Travelling Allowances

The Committee records that it was asked by the British Medical Association to accept the view that first-class railway fares for professional witnesses should be paid, except when disallowed by the Court for special reasons. It is unable to accept this as a general recommendation and suggests no change in the present Regulation. It sees no reason to retain the existing "over two miles" limit, and has "no reason to suppose that the allowance of 1s. 6d. a mile for hire of a vehicle where no railway or public conveyance is available is inadequate."

It had been suggested that witnesses who travel by private car are not strictly entitled to any allowance under the present Regulations if railway or other public conveyance is available, and the Committee was asked to recommend that travelling allowance should be paid as covering railway fare, or a sum of 3d. per mile each way, whichever is the less. The Committee agrees that under present conditions it is not reasonable to limit payment for the use of a witness's car to occasions when no railway or other public conveyance is available. There is no need, however, to pay a higher rate for such use than 3d. a mile.

ABSTRACTS

[The Histopathology of a Focal Hepatitis and of its Termination ("Sawdust" and "Telang" Liver) in Cattle. Getty, R. (1946.) *Amer. J. vet. Res.* **7**. 437-449.]

It has been estimated that telangiectasis and "sawdust" liver is responsible for an annual loss to the United States meat-packing industry of more than 1,000,000 dollars.

Telangiectasis has been defined as "a dilatation of the small or terminal blood vessels of a part" and is synonymous with cavernous haemangioma, haemorrhagic spotty liver, etc., whilst the term "sawdust" indicates the presence in the liver of yellowish-white areas resembling particles of sawdust.

This paper describes an attempt to define the macroscopic and microscopic picture of the changes produced in these cases and to correlate the incidence with the sex, age, and condition, of the animal.

Superficial and deep samples of 82 affected livers from both beef and dairy cattle were submitted to routine histological studies including examination for fat and glycogen.

It was concluded that "sawdust" and "telang" lesions represent different stages of the same pathological condition which is essentially a focal hepatitis. Both types of lesion frequently occur in the same liver, and transitional stages between them may often be seen under the microscope. Many livers exhibited minute lesions visible only on microscopical examination. There was no constant correlation between the lesions and fatty or glycogen deposition. The lesions are periportal in origin and commence as areas of capillary congestion, passing through stages of leucocytic infiltration, necrosis ("sawdust" lesions), then resolution and repair, with dilated sinusoids at the periphery of the lesion representing the early formation of telangiectatic areas.

The age or sex of the animal does not appear to influence the incidence of the condition, which was noted even in six-month-old calves. The majority of affected livers were from carcases classified as "prime" or "choice," but a considerable number occurred in emaciated animals—"canners" or "cutters"; this does not accord with the theory that the lesions may only be the result of metabolic changes due to nutritional disturbances brought about by fattening. None of the carcases with affected livers was condemned, and no concurrent lesions such as fascioliasis were present in the rejected glands.

The need for further research into the aetiology, pathology and prevention of the condition is emphasized.

J. G. C.

[The Extragenital Lesions of Canine Pyometra. Bloom, F. (1946.) *Cornell Vet.* **36**. 324-342.]

The author has carried out a detailed histological study of various organs and tissues from 15 dogs with pyometra which were brought to his hospital for euthanasia. The ages ranged from eight to 14 years and the duration of the symptoms reported by the owners varied from three to 21 days. The changes in the blood and bone marrow of five of the animals have been recorded elsewhere.

The most striking histological lesion consisted of heterotopic collections of myeloid cells in the spleen, kidneys, liver, and adrenals. The detailed structure of the various cells—myeloblasts, myelocytes, neutrophil leucocytes, and megakaryocytes—was particularly well shown in imprint preparations made from the cut surface of the fresh organ. The kidneys showed tubular degeneration and interstitial nephritis; the liver showed congestion and a moderate amount of fatty change; the capsule and trabeculae of the spleen were thinner than normal on account of the presence of excessive myeloid tissue, and the Malpighian corpuscles were atrophic; the lungs were congested and contained many megakaryocytes; the lymph nodes showed hyperplastic follicles and congestion, haemorrhage, or oedema affecting the lymph sinuses; in two animals the adrenal medulla was haemorrhagic and there was necrosis of the cortical zone.

These histological changes indicate a widespread effect of pyometra on the animal. Although the author has observed myeloid hyperplasia in a variety of other diseases in the dog it was never as marked as in pyometra. The exact significance of the myeloid metaplasia is not known. Megakaryocytes are commonly found in the spleen of the normal dog, whereas they are not found in the human spleen in extrauterine life: since the megakaryocytes are markedly increased in number in the bone marrow in pyometra their presence in other tissues may be accounted for by embolism, although they may also arise from fixed cells in the various tissues. The changes observed in the adrenals are similar to those seen in acute infectious diseases in man and animals.

E. G. W.

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[Effects of Protein-Deficient Diets on Immunity to a Nematode (*Nippostrongylus muris*) Infection. Donaldson, A. W., & Otto, G. F. (1946.) *Amer. J. Hyg.* **44**. 384-399.]

Six series of experiments were made to study the effects of a protein deficient diet upon the course of infection with *Nippostrongylus muris* in rats. The experimental diet was devoid of animal protein and contained only about 9 per cent. total protein as compared with about 22 per cent. protein in a balanced diet fed to control rats.

It was found that rats, which had been fed on the protein deficient diet for varying times before receiving a single large dose of infective larvae, harboured many more worms at *post-mortem* examination than did those fed on the balanced diet. Moreover, it seemed that worms could reach the intestine and mature more rapidly and be expelled more slowly in rats fed on the protein deficient diet than in the animals on the balanced diet.

In the case of rats receiving multiple infections, those on the deficient diet were unable to develop the high protective immunity seen in those on the balanced diet, but a very pronounced immunity was developed if the rats were restored to the balanced diet before infection. It was also found that a considerable degree of immunity was lost when the deficient diet was fed for only 36 days, but if the immunity was intensified before transfer to the deficient diet, the number of worms maturing was reduced.

M. L. B.

WORLD MEAT PRODUCTION, 1947

According to the U.S. Department of Commerce, world meat production for 1947 will probably be about the same as, or somewhat larger than, in 1946, when production showed a slight increase over the 59,300,000,000 pounds in 1945. In 1947, Australia and New Zealand are expected to maintain 1946 production levels. While output in Canada for 1947 is expected to drop, the anticipated reduction probably will be less than from 1945 to 1946. Smaller Canadian production will be partially offset by a rise in Argentine output, as improved pastures in the last part of the year and slaughterhouse strikes in the last quarter may result in deferred marketings. United States production may remain at 1946 levels or may even be larger. Continental Europe, Eire, and the United Kingdom can be expected to show greater recovery in 1947 than in 1946.—*Meat Trades Journal.*

Questions and Answers

The submission of questions for inclusion in this column will be welcomed: they can relate to any aspect of veterinary work. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.
All communications should be addressed to the Editor.

Prevention of Recurrent Acetonaemia

Q. CXCIII.—*Can recurrent acetonaemia in Channel Island Cattle be prevented by feeding? For instance, would the feeding of dried grass of high carotene content for one month before and after parturition help to reduce the incidence of this condition in autumn- and winter-calving cows which have succumbed to the condition in previous years? Can you suggest any other likely lines of approach to this problem?*

A.—We do not understand the exact aetiology of acetonaemia in cattle but there is evidence that its occurrence is in some way influenced by the diet. For instance, cows tend to develop the condition in a clinical or sub-clinical form towards the end of the winter when they have been stall-fed for some months. This and other evidence indicates that natural food is less likely to cause acetonaemia than concentrates but there is no information to implicate carotene or any other specific food factor.

Grass meal may, however, be beneficial because of its general nutritional qualities and could be incorporated in a ration and fed to animals for the last month of pregnancy. There are some who consider that the low plane of nutrition which is common to most dry cows may be a predisposing factor to acetonaemia.

* * * *

Treatment of Anoestrus in the Cow

Q. CXCIV.—*Why does expression of the corpus luteum and/or the injection of stilboestrol and/or prolan, sometimes fail to produce oestrus in the female bovine, and what treatment is suggested in such cases?*

A.—Unfortunately it is practically impossible to answer satisfactorily the first part of the question. It is very easy to talk about an antagonism between progesterone and oestrogen but it seems fairly certain that there is some central control about which little is known. It is possible that some animals do not exhibit visible oestrus after one or more of the above treatments has been employed although such an animal may have a silent heat.

Prolan is most likely to be effective in that type of case where lack of oestrus is associated with one or more large ovarian cysts.

The only suggestions which the respondent can make in reply to the second part of the question are that the animals should, if possible, be given more protein and, if dealing with cases of true anoestrus, Pregnant Mare's Serum should be administered in doses of 1,500 to 3,000 I.U.

* * * *

Abortion in Sows

Q. CXCV.—*In a large pig farm, I have been having trouble with sows aborting. In September, 1946, five sows aborted 14 days early and other sporadic abortions have occurred. Certain sows have been served every three weeks using different stock boars (eight in all) and in many cases have not held. Other sows "pig" irregularly. Although suggestive of contagious abortion, blood tests have proved negative.*

Could the abortion have been caused by undecorticated ground nut perhaps containing castor bean? Several deaths had occurred in small pigs which were fed on this food, losses stopping when ground nut was discontinued. What other causes could cause the abortion in the sows?

A.—Abortion in sows in Britain is a problem which has not been given serious investigation. Except for Brucella infection which is rare in this country, and abortion associated with specific diseases, e.g., swine fever, no other bacterial cause has been recorded.

The majority of cases of abortion in sows are considered to be due to errors in management or feeding. Since in this case, the abortions are associated with infertility and sterility it might be worth while trying the effect of vitamin E on the sows and boars. Under experimental conditions with vitamin A-deficient diets abortions were encountered quite commonly.

The sows and boars should be allowed plenty of exercise preferably on grassland, and given laxative feeding if there is any tendency to constipation. The possibility of abortion from poisonous plants or mineral deficiency should not be overlooked.

It would seem unlikely that abortion would occur from prussic acid poisoning without there being evidence of illness in the aborting sows. Could the deaths amongst the young pigs fed on undecorticated ground nut cake not have been due to some other cause? What were the findings on *post-mortem* examination?

Abortion in sows is one of the conditions in which every detail of feeding, management, and general history has to be considered before suggesting any particular factor.

[Our readers are referred also to the reply given to a question (XCV) on this subject in our issue of July 28th, 1945.—*Editor.*]

* * * * *

Canine "Fits": Differential Diagnosis

Q. CXCVI.—*The subject of hysteria has recently been very much to the fore and Mellanby has brought new knowledge to bear on the cause of the disease, but are we any further forward in differentiating hysterical fits of specific hysteria and "fright" disease from those associated with distemper? Can you give any symptoms useful in differential diagnosis?*

A.—Mellanby's work has gone far to demonstrate the mechanism responsible for the change converting natural food into a toxic product and Parry had previously shown what part of the wheat contained the toxic factor. It remains for the chemist to work out the exact chemical change and isolate the toxic chemical substance.

As far as the practising veterinary surgeon is concerned his particular problem, *i.e.*, differential diagnosis, has not been greatly simplified. He has recognized that the hysteria syndrome can be a manifestation of specific hysteria or associated with distemper virus. In the former case the prognosis is good—change of diet and simple sedative treatment will rapidly effect a cure; but in the latter case prognosis must be very guarded. The temperature during an attack is little guide as it is nearly always elevated and one must depend on a clinical examination of the patient in a quiescent period or carefully examine the history for evidence of catarrhal symptoms or known exposure to distemper. Knowledge of dog's diet is invaluable in coming to a definite conclusion, particularly if the feeding of wheat products can be negatived, but if the reverse is true, the clinician's quandary remains. If history indicates that no hysteria-producing food has been given then it is highly probable that distemper is developing and a guarded prognosis should be given and large doses of anti-distemper serum should be administered. The writer does not consider that there is any clinical difference between hysterical fits due to specific hysteria and those due to distemper virus.

During the last few years distemper was frequently ushered in by hysterical attacks and as most dogs during this period had little wheat products but were fed mainly on the "run of the house," hysteria usually indicated distemper. Before the war when a high proportion of dogs were fed on biscuit food, hysterical attacks were much more frequent and in a large proportion of cases were dietetic and due to specific hysteria. If the dog failed to respond to diet change and simple sedative treatment then one was safe in assuming the trouble was associated with distemper. If the dog maintained good health but continued to show hysteria while fed on a hysteria-free diet then one was safe in concluding that the hysteria was an after effect of distemper, and prognosis indicated that the trouble would probably continue over a long period, rarely becoming worse and in some cases the intervals between attacks would increase and the dog recover. Occasionally, severe attacks would finish in an epileptic convulsion.

If an hysteria attack is a preamble to distemper, in a few days symptoms of a febrile catarrh will develop and the nervous symptoms will probably disappear, but in a proportion of cases may reappear when the catarrhal symptoms clear.

Weekly Wisdom

"*. . . Not one man in a billion, when taking his dinner, ever thinks of utility. He eats because the food tastes good and makes him want more. . . . And so probably does each animal feel about the particular things it tends to do in presence of particular objects. . . . To the broody hen the notion would probably seem monstrous that there should be a creature in the world to whom a nestful of eggs was not the utterly fascinating and precious and never-to-be-too-much-sat-upon object it is to her.*"—William James (quoted by Bernard Hart (1943) *The Psychology of Insanity*, p. 133).

* * * * *

To an audience of Yorkshire farmers at Leyburn, Mr. R. A. Pepperall presented figures showing the great advantages derived from milk recording: Average yield in England is 690 gallons for recorded herds, only 540 gallons for all herds. He suggested that every dairy farmer should know just what his own cows were doing.

The Death of Professor H. Vallee

The sad intimation has just been received of the death of a very distinguished figure, Professor H. Vallée, a master in the field of research into diseases of animals and an Honorary Associate of the Royal College of Veterinary Surgeons. Vallée was born at Dijon on June 16th, 1874, and he died there on March 12th, 1947.

After a brilliant career as a student and a post-graduate research worker he became Nocard's 'Chef de Travaux' and he succeeded him as Professor of the Pathology of Contagious Diseases at the Veterinary School of Alfort on February 1st, 1904. He became 'Directeur-Professeur' of the School from 1911 to 1920 and about this time he took over the direction of the work of the Central (formerly National) Laboratory of Veterinary Research of the Ministry of Agriculture at Alfort and he remained there until 1929 when he was appointed 'Chef Supérieur des Services Vétérinaires' (C.V.O.) at the Ministry of Agriculture. Unfortunately Vallée was obliged to retire in 1931 owing to ill-health and he remained in retirement at Dijon, an invalid until the day of his death. Although he was for 16 years apparently far from his beloved laboratories at Alfort in reality he remained there. It was his organization, "sa chose," and it will always be. He never ceased to be interested in everything which was done there. Nothing was undertaken after he had retired without his having been consulted and he was always willing to give his precious advice on any matters connected therewith or indeed on any subject pertaining to research about which he was frequently approached.

Professor Vallée was Commandeur de la Légion d'Honneur, Membre de l'Académie de Médecine, Membre de l'Académie Vétérinaire, Chef de Service à l'Institut Pasteur and a member of most of the French scientific societies. His fame was world wide and his outstanding contribution to science was recognized by the scentific societies of many countries. He was a permanent delegate of the French Government to the League of Nations and he was Vice-President of the League of Nations Committee dealing with Veterinary Hygiene.

Vallée at Alfort carried on the Pasteur tradition and only those who have visited the laboratories there can appreciate the extremely limited facilities which were available for carrying out such wonderful work. One's impression on visiting Alfort is similar to that which was given to an American 'king' when he visited the installation of a well-known French firm which tins food. On his return he reported that it was "plutôt une cuisine qu'une usine." Alfort is rather a laboratory than an Institute especially when one considers the paucity of technical assistance.

Yet from that laboratory have emerged observations which will stand the test of time and they are of no mean order. The laboratory was originally intended for investigations into foot-and-mouth disease and as Vallée said "I had with my old friend Carré the honour to be associated with my eminent master Nocard and the director of the Pasteur Institute, Roux, in this work." A series of lectures given in Buenos Aires (La Fièvre Aphteuse—Buenos Aires, 1929) by himself summarized the contributions made by Vallée and his co-workers to our knowledge of this disease as well as making reference to the work of others. It would be impossible to deal adequately with all the valuable observations of Vallée, Carré and Rinjard on foot-and-mouth disease in a short space. Outstanding among these, however, were their demonstration of the existence of at least two different immunological types of the virus, designated "A" (Allemand) and "O" (Oise), an original observation which has been amply confirmed and extended, and of the possibility of producing an active immunity in cattle with a virus suspension rendered non-infective by treatment with formaldehyde (an observation made also independently by Bedson and Maitland in this country working with guinea-pigs instead of cattle).

Vallée with his "old friend" Carré made a systematic study of infectious anaemia of horses and they were the first to demonstrate that the disease could be transmitted to horses by experimental inoculation and that the causal agent was a 'filterable virus.' Their studies on this disease which were carried out from 1904 to 1907 were fundamental and little of great importance has been added since to our knowledge of the disease.

Vallée and Rinjard in papers published in 1926 and 1934 reported that it was possible to inoculate the live bacilli of Johne's disease, incorporated in a mixture of vaseline oil, olive oil and pumice stone, subcutaneously into cattle without harmful effect or the development of intestinal lesions and at the same time induce resistance to the disease. The extended use of this vaccine is now being seriously considered as a practical means of controlling Johne's disease.

It was also at Alfort that the classical work of Carré (1905) on distemper in dogs was carried out, showing that the cause was a 'filterable virus,' an observation which was amply and dramatically confirmed by Laidlaw and Dunkin in this country 20 years later.

Vallée carried out researches on tuberculosis, anaerobic diseases, sheep pox, tetanus and rabies and in all these he contributed something of real and lasting value. He was associated with many collaborators including those already mentioned and others such as Leclainche and Panisset. It can be said that all the researches undertaken at Alfort during the period 1904 to 1931 bear his imprint whether he made them himself or whether they were inspired or controlled by him. His influence undoubtedly extended far beyond his own laboratory and his work was an inspiration to all.

It would not be inappropriate to refer briefly to the fruitful association of the 'savants' of the Alfort School and the Alfort National Laboratory, which were always closely linked, and those of the Pasteur Institute. Nocard, Professor of the Alfort School, was an old 'pastorien' since during his studies on rabies he came to 'la rue d'Ulm' and Roux wrote "Pasteur benefited from having met Nocard as Nocard did from having known him." Nocard was often in the laboratories of the Pasteur Institute; he brought his clinical and experimental knowledge, so useful in tests in animals. He was a very dear friend of Roux and they carried out many experiments together and the results were applicable to veterinary and human medicine and to bacteriological technique. Nocard realized with the laboratories of 'la rue Dutot' (Pasteur Institute) a true symbiosis "il disposait de nos moyens comme nous disposions des siens" (Roux).

It is not always appreciated how useful a close association between research workers in the fields of veterinary and medical medicine can be and what a good thing it would be to encourage it more.

Nocard was also an integral part of the Pasteur Institute by virtue of his teaching and it has been said that those who followed his lectures in the 'Cours de Microbiologie' could not forget his talent of exposition which he transmitted with his science to his pupils who became in turn 'pastoriens' like Vallée.

All the members of the great Alfort team of which Vallée was the leader have now passed on, Vallée, Carré and Rinjard. A thing which is most necessary in any research organization is that the concept "le roi est mort—vive le roi" should not be forgotten. It has been said also that the secret of long life is the capability possessed by unicellular organisms of being continually born again. The veterinary research workers in France as in other countries have in recent years through no fault of their own sensed discontinuity and have come to appreciate the necessity of veterinary research being born again. There are many young men of promise and all they need is official encouragement to continue the great French tradition of genius.

Those who knew Vallée personally must have admired his appraisal of a good vintage and the bonhomie which accompanied it and his philosophy of life, which was extended to his research work, was undoubtedly similar to that of Chesterton who believed in not letting the water get into the wine.

Ian A. Galloway.

VETERINARY EDUCATIONAL TRUST

Lieut.-Colonel George Barnett's Secretarial Appointment

We are glad to learn of the appointment, under the Veterinary Educational Trust, of Lieut.-Colonel George Barnett, O.B.E., M.C., M.R.C.V.S., as Secretary of the Equine Research Station at Newmarket and Secretary of the Bloodstock Industry Committee.

Colonel Barnett, who qualified from the Royal Veterinary College in 1918, has had a distinguished career with the Royal Army Veterinary Corps, in which he has seen 29 years' service, being now on leave pending retirement. He was awarded the M.C., the Order of St. Stanislaus and Mentioned in Despatches in the first Great War, and the O.B.E. in the last war. He has seen service in France, Russia, India, China and Iraq and, during recent years, was Assistant Director of Veterinary Services, Army Headquarters, India, for five years and Commandant of the I.A.V.C. Centre for four years.

An appropriate prelude to his new appointment is furnished by Colonel Barnett's long period of stewardship of the Lahore Race Club, and by his membership of the Council of the National Horse Breeding and Show Society of India.

His wife is well known in India, where she organized a very fine Family Welfare Centre for the benefit of the wives and children of the Indian soldiers of the I.A.V.C. to which H.E. the Commander in Chief donated Rs.500 as a mark of his appreciation.

QUESTIONS IN PARLIAMENT

Universities (Increased State Scholarships)

Prior to the Easter Recess, Mr. Corlett asked the Minister of Education whether he is now in a position to indicate his policy in regard to State scholarships and other awards in 1947 for the purpose of enabling students to follow university careers.

Mr. Tomlinson: Yes, Sir. It has been decided to increase the number of State scholarships in 1947 from a maximum of 360 to a maximum of 750. Steps will be taken to ensure that the increased number of awards are distributed fairly among the universities and university colleges. At the same time scholarships to a maximum of 100 will be offered to enable suitable students from establishments of further education, particularly those following part-time courses, to enter on full-time university courses. There will also be scholarships up to a maximum of 20 available to enable students of mature age who have shown special ability to follow a university course. Details of the procedure to be followed in regard to all these awards have been worked out with the co-operation of the universities and are being announced shortly. I rely on local education authorities to maintain and, where necessary, extend their present provision of major awards, and on this basis the new arrangements will materially extend the opportunities for university education.

Mr. Corlett: While I thank the Minister for his welcome reply, may I ask if he could give the cost of this?

Mr. Tomlinson: I cannot give the exact cost, but it will be in the neighbourhood of £300,000.

Mr. Hastings: May I ask the right hon. Gentleman if any of these scholarships apply to the training of doctors and dentists?

Mr. Tomlinson: Yes, Sir, as they always have done.

Mr. Skinnard: In the case of the welcome provision for students of mature age, is it contemplated that maintenance allowance will be given to the wives?

Mr. Tomlinson: Yes, Sir, and families where families are involved.

. . . . .

Foot-and-Mouth Disease

Colonel Ropner asked the Minister of Agriculture whether his attention has been called to the evidence recently given by one of his officials at Coalville, Leicestershire, to the effect that foot-and-mouth disease might have been caused by tinned meat from the Argentine; and whether he will make a further statement on this subject.

Mr. T. Williams: Yes, Sir. Reports of the evidence given by one of my officers in the case referred to may have conveyed a misleading impression. It is known that infection may be carried in frozen and chilled carcases from South America, but I am advised that no apprehension need be felt as regards tinned meat since the process of manufacture would destroy any virus the meat might contain.

Mr. House: Is my right hon. Friend aware that there is a considerable opinion that foot-and-mouth disease is largely attributable to cattle grazing on land which has been doped with chemical fertilizers?

Mr. Williams: That is utterly contrary to all our expert advice.

NOTES AND NEWS

Diary of Events

April 12th.—Meeting of the Association of Veterinary Teachers and Research Workers, at the Royal Veterinary College, N.W.1, 11 a.m.

April 14th.—Meeting of the Farmers' Club at the Royal Empire Society, London, 2.30 p.m. [Mr. H. H. Nicholson, of Cambridge: "The Problem of Land Drainage."]

April 16th.—Meeting of the Scottish Branch, N.V.M.A., at Stirling (Golden Lion Hotel), 2.30 p.m.

April 16th.—Meeting of the Section of Comparative Medicine, Royal Society of Medicine, 1, Wimpole Street, W.1, 5 p.m.

April 18th.—Yorkshire Division, N.V.M.A., Dinner and Dance at Leeds (Guildford Hotel). 7.30 p.m.
Annual Meeting of the Association of Veterinary Teachers and Research Workers (Northern Region), at the Harper Adams Agricultural College, Newport, Shropshire, 11 a.m.

April 23rd.—Meeting of the South-Eastern Division, N.V.M.A., at Tunbridge Wells (Mount Ephraim Hotel), 2.30 p.m.

April 23rd.—Meeting of the Lancashire Division, N.V.M.A., at Preston (Booth's Café, Fishergate), 3 p.m.

April 25th.—Meeting of the Mid-West Division, N.V.M.A., at Bristol (Bright's Café, Clifton), 2.15 p.m.

May 7th.—Special Meeting of the N.V.M.A. Technical Development Committee, at 36, Gordon Square, W.C.1, 11 a.m.

May 23rd.—R.V.C. Students' Union Society Annual Ball, Grosvenor House, Park Lane, W., 8 p.m. to 1 a.m.

July 28th—Aug. 1st.—N.V.M.A. Annual Congress in Edinburgh.

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New Appointments to the Staff of the Ministry of Agriculture

As notified in recent issues, Council, N.V.M.A., has decided that no advertisements for appointments to the veterinary staff of the Animal Health Division of the Ministry of Agriculture shall be accepted for *The Veterinary Record* pending the settlement, in a manner satisfactory to the Association, of the question of the status and salaries of the Veterinary Officers of the Division.

In the meantime, any members of the profession who may, nevertheless, contemplate applying for such posts, should these be advertised elsewhere, are requested first to communicate with the General Secretary of the Association at 36, Gordon Square, London, W.C.1

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Questionnaire to Divisions, N.V.M.A.

Honorary Secretaries of Divisions who have not yet replied to the General Secretary's letter of December 23rd are asked to treat the matter as one of urgency. They are reminded that, should they require further copies of the questionnaire for circulation to their members these are available, on request, from 36, Gordon Square, London, W.C.1.

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PERSONAL

We learn that Mr. E. Conn, M.R.C.V.S., has accepted an appointment with the Government of Northern Ireland and in consequence has relinquished his position as Chief Veterinary Officer to the Hampshire Cattle Breeders' Society's Artificial Insemination Centre at Lyndhurst.

Since Mr. Conn went to the Lyndhurst Centre at its inception two years ago, the work there has undergone phenomenal expansion. From a membership of 75, this has risen to over 1,000, and whereas at first there were only 500 cows to inseminate, they are now inseminating 1,500 new cows each month.

Mr. Conn has been responsible for the establishment of sub-centres at Andover and at Petersfield and a further sub-centre is to be established in the Isle of Wight this summer.

. . . . .

Birth.—McNeil.—On March 28th, 1947, at St. Mary's Nursing Home, Porthcawl, to Doris, wife of Robert McNeil, M.R.C.V.S., D.V.S.M., a daughter.

. . . . .

Marriage.—Fishwick—Huckle.—On March 29th, 1947, at Trumpington Parish Church, Cambridge. Wilfred Fishwick of Blackburn, Lancs., to Betty Huckle, M.R.C.V.S., of Cambridge.

Wilson—Robertson.—On March 17th, 1947, at St. Ternan's Episcopal Church, Muchalls, by the Right Rev. Bishop of Brechin, assisted by the Rev. J. R. Norman, Muchalls, Alexander Lamb, Veterinary Investigation Officer, Auchincruive, Ayr, second son of Mr. and Mrs. Gavin Scott Wilson, Coatbridge, to Moira Catherine, younger daughter of Mr. and Mrs. Hamish Robertson, St. Margaret's, Muchalls, Kincardineshire.

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R.C.V.S. OBITUARY

Jones, Arthur Humphreys, of Exmouth, Devon. Graduated London, March 22nd, 1886. Died March 28th, 1947; aged 83 years.

Taylor, William Gee, Capt. late N.Z.V.C., 139, Waterloo Road, Lower Hutt, New Zealand. Graduated London, January 13th, 1898. Died, February 4th, 1947.

GENERAL OBITUARY

The Late Professor Stewart MacDougall, M.A., D.Sc., LL.D., F.R.S.E.

An Appreciation

Robert Stewart MacDougall died on March 28th, 1947. This intimation will be received with deep sorrow ; but at the same time it will conjure up in the minds of the many veterinarians who were his students lively and happy memories of a man for whom their feelings are those of gratitude and warm affection.

Stewart MacDougall was born on June 5th, 1862. He graduated at the University of Edinburgh, Master of Arts in 1889 and Bachelor of Science in the following year. From the first he was attracted to teaching and his remarkable gifts of exposition were quickly evident and as quickly appreciated. For some years he lectured on biology to a wide variety of audiences ; to students training as school teachers, to gardener probationers at the Royal Botanic Garden and to classes in the Heriot-Watt College. In 1906 he became Steven Lecturer and in 1920 Reader in Agricultural and Forest Zoology at Edinburgh University.

In the nineties of last century, MacDougall joined the staff of William Williams at the New Edinburgh College and was thus brought into his first contact with veterinary education. He has described to me with what apprehension he faced his first class, for the reputation of veterinary students in directions other than the pursuit of learning was then a formidable one. In 1903 he became Professor of Biology at " Dick's " and for the last 41 years, I have known him as teacher, colleague and friend. Doubtless some other hand will later describe his life work and maybe try to assess something of its worth, but here an attempt is made to recall only some intimate memories which must be shared by many.

A long time ago when I was a small child in the hand of my father, I was suddenly called to observe a remarkable old man who was striding along Princes Street, staff on shoulder, chin up, arm swinging, hat a-tilt ; his plaid flying behind him. It was only a glimpse, but so vivid that I have never forgotten it nor the parental injunction " Remember that you have seen John Stuart Blackie " ! This was our famous professor of Greek of whom all Edinburgh folk were very proud : at that time Stewart MacDougall must shortly before have graduated from his classes. With whatever degree of success Blackie may have discoursed on the language of ancient Greece, his powerful personality impressed its mark on his students, and sometimes when I have seen " Stewarty Mac " as he passed from College to University with his characteristic brisk, happy, jaunty bearing (so closely resembling that of the other), I have wondered whether he had not fallen heir to some temperamental inheritance from his old master.

But to most of us he will be best remembered not outside but inside the class-room. From the moment he entered it, and his appearance was often something of the suddenest, the class fell silent and continued in close attention throughout the lecture ; and how could they help it ? The man was so earnest and yet so benevolent, so incisive yet so charming, so boyish yet so wise. His descriptive powers were quite remarkable in his rapid construction of vivid word-pictures ; these he produced not only by his choice and arrangement of the words themselves, but by intonation and sudden and surprising inflexion of voice ; by the eloquent upward sweep of an arm and slow waggle of the hand. Or again, when he wished specially to emphasize a matter, by his eager, tense attitude as he leant over his lecture desk with forward outstretched arm and darting, vibrant fingers ; his voice fallen almost to a whisper. The student then felt that the teacher was anxious, even fearful, lest one word of his instruction might be missed : and so soon as it was grasped, heads quickly bent as the pencils scurried over the note-books.

These might be called class-room tricks and had they been practised by someone who was not their complete master, they would have been merely comic and would in consequence have failed. But MacDougall was never comic. His sparkling wit, deep humour and whimsical drolleries could keep a class-room or a dinner table in a constant bubble of laughter for as long as he pleased ; but he was never comic.

Thomas Carlyle once wrote " A man of lively intellectual faculties, of ardent friendly character, and of wide speculation and acquirement, very fearless, very kindly, without ill-humour and without guile." He was writing of Blackie ; but this estimation exactly fits MacDougall. This time, however, these qualities derived not from acquired inheritance but were inherent in the man.

" If Love will serve, lo ! how I love my friend,
If Reverence, lo ! how I reverence him,
If Faith be asked in something beautiful,
Lo ! what a splendour is my faith in him."

J. Russell Greig.

. . . . . .

The funeral was private, but at the request of the family, the following represented the Royal (Dick) Veterinary College at the Crematorium, Edinburgh, on April 7th: Principal W. McG. Mitchell, Professor Geo. F. Boddie and Major D. S. Rabagliati.

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V.V.B.F. LADIES' GUILD

Dinner-Dance at Dumfries

A dinner-dance was held in the Cairndale Hotel, Dumfries, on March 27th when members of the veterinary profession and their friends—a party of 90—spent a most enjoyable evening.

The arrangements were in the hands of a committee formed from the members of the Ladies' Guild in Dumfriesshire who were generously supported by members from Cumberland, Kirkcudbrightshire and Wigtownshire.

Originally the function was planned for March 13th when the President of the N.V.M.A. and Mrs. Mitchell had expressed their willingness to be present. Owing to the severe snowstorm and blocked roads and railways the occasion had to be postponed. Unfortunately the President was not able to attend on the new date, but Mrs. Mitchell was present and in a very able and concise manner she apologized for her husband's absence and appealed to all ladies connected with the profession to become members of the Guild.

Socially the evening was very successful and many expressed the wish that this, the first, would not be the last function of its kind in the area.

A considerable balance will be available for the Victoria Veterinary Benevolent Fund.

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ANIMAL HUSBANDRY ADVISER TO THE BRITISH MIDDLE EAST OFFICE, CAIRO

Announcement is made of the appointment of Dr. A. B. Fowler, Deputy-Director of the Hannah Dairy Research Institute and lately chief executive officer to the South Ayr Agricultural Executive Committee, to the newly created post of Animal Husbandry Adviser to the British Middle East Office, Cairo. The appointment, which has been made by the Foreign Office, will be held initially for three years on secondment from the National Agricultural Advisory Service for England and Wales, to which Dr. Fowler was recently transferred.

Dr. Fowler, whose appointment follows closely on the extensive survey of Middle East livestock recently undertaken by the Director of the Hannah Institute, Dr. Norman Wright, already has left for his new post.

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LEGAL NOTES

Responsibility For Drugs Supplied

In its issue of March 29th the *British Medical Journal*, under the above heading, makes the following observations on the legal findings, and their implications, in the case of Dodd *v.* Wilson & McWilliam and others, which also were dealt with in our columns in our issue of March 15th:—

" A recent decision of the High Court[1] opens up a serious new legal threat to medical practitioners, though it concerns a firm of veterinary surgeons. In the summer of 1945 a drug-retailing firm recommended to the veterinary surgeons a new preparation known as ' corynebacterium toxoid ' for use against summer mastitis in dairy cattle. The managing director assured them that it was perfectly harmless. They inoculated with it two dairy herds, and sixty cows suffered from serious illness. The dairy farmers sued the veterinary surgeons, who joined as co-defendants the suppliers of the toxoid, who in their turn joined the manufacturers.

" The judge, Mr. Justice Hallett, said that if the veterinary surgeons had recommended the toxoid, supplied it, charged the farmers for it, and left the farmers to administer it, they would undoubtedly have been liable. If they had rendered a bill charging for the toxoid as one item and for their services as another, they would also have been liable. He could not see how their liability was lessened by the mere fact that they themselves injected the toxoid. He therefore concluded that there was an implied condition in the contract between the two parties that the substance to be used for the inoculation should be reasonably fit for the

purpose of inoculating the cattle against summer mastitis. The condition had not been fulfilled, and the farmers could recover damages against the veterinary surgeons; the veterinary surgeons could recover from the suppliers, and the suppliers again from the manufacturers. He assessed the damages at £3,341 18s. 6d., with costs.

"This decision makes new law of a very disturbing kind. If it remains unchallenged, a doctor may be called upon to pay heavy damages if any drug, injection, or appliance which he uses should cause harm through not being reasonably fit for the purpose for which it is intended. A writer in the *Law Journal*[2] suggests a cumbersome form of disclaimer of warranty which might afford partial protection, but is a general practitioner to produce this every time he dispenses a bottle of medicine? To shoulder the consequences of our own mistakes is bad enough; to be responsible for those of drug manufacturers would be crushing. In view of the possibility of an appeal, further comment must be withheld."

[We understand that there is to be no appeal.—Editor, *Vet. Rec.*]

[1] Dodd *v.* Wilson (1946) 2 All E. R. 691.
[2] (1946.) **96**. 681.

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Failure to Notify Foot-and-Mouth Disease.—The Scottish Farmer reports that a fine of £50 or three months' imprisonment was imposed in Linlithgow Sheriff Court on March 25th on Robert Bruce, pig feeder, Stanley House, Birdsmill, Broxburn, West Lothian, who pleaded guilty to having between January 28th and February 18th failed to give notice with all practicable speed to a police constable of an outbreak of foot-and-mouth disease among pigs in his possession.

The Fiscal said the outbreak was discovered when Bruce sent 16 pigs into Edinburgh Market. There were two casualties among them which he had intimated as being unsound and they were found to have foot-and-mouth disease as were the rest of the consignment. When his premises were inspected 244 pigs were found diseased and inspectors stated the pigs had had the disease for at least three weeks. The maximum penalty was a fine of £5 per animal or £1,220 altogether.

An agent stated accused had been handling pigs for 20 years and was not acquainted with the disease. He knew something was wrong with his pigs but thought their limping was due to the hard weather conditions and the frozen ground. In previous years the limping had vanished when the thaw came. A previous consignment with "casualties" which had been sent to Edinburgh Market on February 3rd had been passed as fit for human food which confirmed him in his belief that the limping was due to the weather. Seven hundred pigs had been slaughtered, and in addition to the loss on these accused would also lose about £1,500 through his piggeries having to be closed for three months.

Sheriff Macgregor, K.C., in imposing penalty, said there was no precedent to guide him. He thought it would be unfair to impose the maximum penalty in a case with such features of hardship.

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FOWL PEST INFECTION "WIDESPREAD"

Since the announcement at the beginning of March (*Vet. Rec.* **59**. 129) that two outbreaks of fowl pest had been discovered amongst poultry in the neighbourhood of Bath, 13 further outbreaks of the disease have been confirmed in various parts of the country. These outbreaks (states the Ministry in a further announcement) indicate that infection is widespread.

Fowl pest is known to exist extensively in many European countries as well as on the American continent and as the frozen carcases of poultry may contain the virus of the disease, it is thought that poultry waste from imported birds has been the channel through which the disease has been introduced into this country. Poultry keepers are, therefore, strongly advised to boil all foodstuffs which may have been in contact with or contain poultry waste before they are fed to their birds.

Poultry keepers are also reminded of their obligation to inform the Director of the Ministry's Veterinary Laboratory at New Haw, Weybridge, Surrey, whenever they suspect that any of their birds are affected with fowl pest. In each instance the carcase of a diseased or suspected bird securely packed with sufficient absorbent packing to prevent leakage of moisture and marked with the words "Suspected Fowl Pest" must be forwarded to the Veterinary Laboratory. In addition, it is desirable that the poultry keeper should not only inform the Laboratory of the number of birds on the premises and the number of deaths during the preceding 28 days, but also give a description of the symptoms he has observed and some idea as to whether or not the disease has become increasingly virulent or more rapid in its spread.

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Swine Fever:

Lincs. (*Kesteven*).—Bingera, Fen Road, Washingborough, Lincoln (March 31st).

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DIET AND CANINE HYSTERIA

In our issue of March 29th we published contributions on the above subject from members of the veterinary profession which appeared in the correspondence columns of the *British Medical Journal* subsequent to the publication in that periodical of Sir Edward Mellanby's article entitled "Diet and Canine Hysteria: Experimental Production by Treated Flour." The following additional letter from a veterinarian was published in the April 5th issue of the *B.M.J.*:—

Sir,—Sir Edward Mellanby's notion that canine hysteria was produced by feeding growing dogs on agenized flour (December 14th, 1946, p. 885) cannot be reconciled with experience of the behaviour of healthy dogs or the pathology of those diseased dogs which exhibit canine hysteria. It is very difficult to assess Sir Edward's data, since he omitted to correlate his clinical observations with the *ante-* and *post-mortem* pathology of his laboratory dogs and rats. Moreover, his statement that fits were observed "in the animals receiving treated [agenized] flour and were never seen in those having untreated flour" was qualified by his earlier statement that fits "could *often* be produced" by feeding agenized flour [my italics].

It would seem that some of the dogs which were fed on agenized flour did not show fits, but I cannot find any description of them: they are not illustrated in Sir Edward's three tables; they obtained even less notice than the rats, which were uniformly negative. This evidence should have been detailed since it is consistent with the anomalies of the naturally occurring canine hysteria, of which I will cite two examples from my own records:

(1) No further fits have been observed in the dogs whose diet has been changed from biscuit to meat, whereas fits have persisted in some of the dogs whose diet (biscuit) has been maintained. Some observers have been misled by this phenomenon into attributing the cause of canine hysteria to certain dog biscuits. But I have studied canine hysteria in dogs which, since weaning, had been fed exclusively on meat. (2) No further fits have been observed in the dogs from which roundworms have been expelled, whereas fits have persisted in some of the untreated dogs, although no change has been made in the diet. Many have been influenced by this phenomenon into attributing canine hysteria solely to roundworms. For an understanding of the clinical phenomena the pathology must be fully studied.

My observations of naturally occurring canine hysteria have been incorporated in papers on the B.H.S. infection, which is a widely adopted abbreviation for the infection by various Lancefield groups of the *β-haemolytic streptococcus* (Hare & Fry, 1938; Hare, 1946). Canine hysteria is not a disease entity; it is an event which may occur in the course of a particular infection; it is a type of spasmophilia which is expressed by a proportion of dogs infected by the B.H.S. and roundworms (*Toxascaris* sp. and/or *Toxocara* sp.). The essential pathology of dogs which have been destroyed within 24 hours of showing canine hysteria is that of the B.H.S. infection plus the presence of a variable number of roundworms in the duodenum—*i.e.*, chronic tonsillitis, hyperplasia of the reticulo-endothelial system, catarrh of the pylorus of the stomach and duodenum, albuminous degeneration of the liver and kidneys, and, as first recorded by the late Professor John Eyre (1928), toxic encephalopathy.

In my cases I have not observed "loss of consciousness" and "epileptiform convulsions," which Sir Edward reported in some of his dogs. The label "epileptiform convulsions" (without loss of consciousness) was applied by nineteenth-century French and British veterinary authors to what is now termed canine hysteria. More recent work on the pathology has clarified the differential diagnosis of at least four distinct types of spasmophilia of dogs, one of these types being epileptiform convulsions, which are now recognized as due to the B.H.S. infection complicated by coccidiosis. Unfortunately some authors carelessly apply the words "epileptiform convulsions" (with loss of consciousness) to the behaviour of dogs which are in the condition of hepatic and renal failure. This is the pathology of the terminal stage of several diseases, one of which is the conjoint B.H.S. and roundworm infections.

From Sir Edward's statement that "a time may come, however,

when a dog which seems to be acquiring immunity suddenly suffers the most severe epileptiform fits and dies" I infer that his dogs, to which he attributed "epileptiform convulsions" and "loss of consciousness," were in a condition of hepatic and renal failure. Sir Edward's description of his dogs' behaviour, apart from "epileptiform convulsions" and "loss of consciousness," seems to me to be consistent with the symptomatology of naturally occurring canine hysteria, which was described in French and British veterinary literature of over 60 years ago. Sir Edward has been gravely misled into attributing our knowledge of canine hysteria to American sources of the past 30 years.

I find further support for my inference that Sir Edward's dogs were suffering from the B.H.S. and roundworm infections from his description of "the actual observed state of the affected animals" in such phrases as: "the attacks seem to represent temporary exacerbations superimposed on a chronic abnormal condition"; "in young puppies the attacks came on insidiously and usually took some weeks to develop"; "lactating bitches appear to be particularly prone to hysterical fits." I accept Sir Edward's diagnosis of his dogs' behaviour as canine hysteria, not his startling notion of its aetiology. In my opinion he experimented on diseased dogs and mistook the expressions of their disease for the consequences of his dietary changes.—I am, etc.,

TOM HARE.

References

EYRE, J. W. H. (1928.) *Vet. J.* **84.** 183.

HARE, T., & FRY, R. M. (1938.) *Vet. Rec.* **50.** 213, and Proc. N.V.M.A. Congress, 1938.

——. (1946.) *Ibid.* **58.** 177.

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CAREERS IN ZOOLOGY

Mr. John Smart contributes to *Nature* (**159.** 378-9) an account, from which the following extracts are taken, of the discussion on the subject of "Careers in Zoology—Possibilities and Training" which took place at the annual meeting of the Association of British Zoologists held in London on January 11th. The Council had proposed this topic in an endeavour to provide those responsible for the teaching of zoology in schools, universities and kindred institutions with some guidance on openings likely to be available for young zoologists in the future and what, if any, special directions training should take.

Early in the discussion it became apparent that the field of employment in zoology is clearly divided into two parts: (i) teaching coupled with academic research, and (ii) applied work with research that is, to some extent at least, *ad hoc* and directed. All speakers who alluded to this division expressed their dissatisfaction with its existence, and stated that they believed that for the general health of zoology it is imperative to break down the division as soon as possible. Professor J. Gray (Cambridge), opening the discussion, emphasized the desirability of encouraging first-class students to enter the applied field, where interesting but difficult problems await solution; increased facilities for fundamental research and a feeling of intellectual freedom are at least as important as high salaries. At present there is little relation between the supply and the demand for recruits; the numbers involved are often small, and no one could afford to undergo specialist training in such subjects as helminthology and protozoology unless assured of a reasonable career. Professor Gray felt that many existing difficulties would be overcome if there were closer liaison between university teaching departments and institutions undertaking applied studies; he felt that much could be said for extending the principle whereby individuals should occupy simultaneously a university post and an official position under such organizations as the Medical or Agricultural Research Councils.

Dr. F. P. Coyne (Imperial Chemical Industries, Ltd.) suggested that what industry and commerce require of the entrant into the field of applied zoology is not that he be a ready-made specialist, but that he have a capacity for clear thinking. The idea that he need have an encyclopaedic knowledge of a special field, or of the whole of zoology for that matter, is found among non-applied zoologists but not among those already in the applied field. Beyond a general training in zoology, the best additional qualification for applied work is probably a degree or diploma in agriculture.

Professor C. H. Waddington (Edinburgh) began his observations by pointing out that while Britain had, at one time, led the field in genetics, the subject has latterly fallen behind somewhat, and the main developments have been taking place elsewhere. Genetics cannot be purely a study of breeding experiments, but successful research is dependent on parallel advances of knowledge in the physiology of plants and animals, and in the analysis of exactly what factors contribute toward the qualities of plant or animal that it is desirable to improve. He illustrated this by pointing out some of the many factors that contribute toward a satisfactory milk-yield in dairy cows. Another field in which advances are due to be made is that of genetics in relation to general evolutionary processes. Professor Waddington suggested that genetics should be more integrated into the general subject of analytical biology, and the past tendency towards the separation of genetics from zoology should, if possible, be reversed. Future laboratories of genetics will require zoologists as well as specifically trained geneticists.

Dr. E. L. Taylor (Veterinary Laboratories, Weybridge), discussing veterinary science generally and helminthology in particular, pointed out that work in these fields tends perhaps to overlap into other fields to a greater extent than any other type of work in which zoologists normally find employment. However, it would not be desirable to add pharmacology, for example, to the zoologist's equipment; but perhaps the general subject of parasitism in all its manifestations, and including immunity, might receive more attention in the general training of zoologists. Dr. Taylor stressed the fact that the fundamental approach to the problems of parasitic diseases is ecological, since all these diseases are, on final analysis, the result of man-made derangements of environment. Losses due to parasitic disease are enormous, and it is to be hoped that, in future, zoologists, even if in limited numbers, may find employment in this field.

In the general discussion among members it was suggested that biology, and therefore zoology, is now such a complex subject, with roots deep down in chemistry, physics and mathematics, that certain preliminary training in these subjects should be insisted upon before work in zoology itself is commenced at any other than a most elementary level. Such training is required for medicine; why should zoology exempt its trainees from being of a certain educational standard in such very relevant subjects? One speaker suggested that the rising cost of living, along with the relatively poorer career prospects in biology, is leading to an ever larger number of potential zoologists taking up medicine rather than zoology; but this point of view was immediately controverted by another speaker. The fact that zoologists appear to have succeeded in a great number of non-zoological war jobs was cited as showing that zoology as a discipline has very considerable educative value, as distinct from being a subject of training in a specific technical field, and that it is desirable that this should be stressed. To speak of "training" in zoology implies in itself that the trainee is to become a professional zoologist. No one would talk of a "training" in classics, but an "education" in classics was held to fit a man for almost any job where administration is involved. Is there anything that makes the man "educated" in the classics or such similar subjects automatically a better potential worker than the man "trained" in zoology?

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"MENACE OF INDISCRIMINATE TRANSPORTATION OF ANIMALS BY AIR"

A Tribute to Britain

Dr. Benjamin D. Blood, Chief of the National Bureau of Veterinary Affairs, United States Military Government in Korea, in the course of a paper to the 1946 Annual Meeting of the American Veterinary Medical Association (*J. Amer. vet. med. Ass.* **110.** 1-10) observed: "That indiscriminate transportation of animals by air constituted a menace to effective animal-disease control was exemplified in August, 1943. A sizable force of heavy bombers participated in what was called a 'shuttle bombing' mission. The planes, which were despatched from England, after bombing their German target, landed in North Africa; the process was then repeated in reverse. The crews, returning to England, had accumulated an extensive collection of North African souvenirs, the most remarkable of which was a small donkey. The entry of this unwanted alien into Great Britain from an area in which glanders, anthrax, and other animal diseases were prevalent served to emphasize the fact that international air traffic of pets and mascots was a definite threat to that country's animal health programme. One hundred and eighty-eight dogs, three cats, one coyote and one donkey are known to have been landed in Great Britain by aircraft during the war.[1] It is noteworthy that over 96 per cent. of these animals were placed in quarantine or otherwise properly disposed of. The fact that such a large proportion of those air-borne animals were rounded up under extremely difficult war-time conditions is indeed a tribute to the untiring efforts and zeal of British animal-disease control officials. The fact that Great Britain has remained free of rabies emphasizes the effectiveness in this accomplishment."

Dr. Blood also records that the first mass shipment of livestock by air is believed to have occurred in the spring of 1944 when several hundred horses and mules were flown from India to Burma for use in the British Wingate expedition. Both the United States

Army Air Forces and the British Royal Air Force participated in the movement, using gliders as well as planes. This was followed in 1945 by three air shipments of Chinese Army horses and mules. In the first of these shipments, 2,682 animals were air-lifted from Burma to China over the "hump" at altitudes as high as 20,000 feet. The two later shipments both occurred in China. A total of over 7,000 animal trips was accomplished with the loss of but one animal, which had to be destroyed after developing an uncontrollable excitability while in mid-air.

[1]Cabot, Sir Daniel M.; Personal communication, June 28th, 1946

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LONDON VAN HORSE PARADE

One of London's greatest holiday attractions was the Van Horse Parade on Easter Monday in Regent's Park, with the ornately dressed Pearly Kings, the beribboned horses and the gaily decorated carts. There was an entry of 251 horses which was considered very satisfactory in view of the difficult time owners have had in keeping their horses in condition during this winter. Last year the total was 196. The brewers and larger transport firms entered some fine animals, but there were also some admirable horses and turnouts to be seen among the vanner representatives.

Frances, Lady Daresbury, president of the London Van Horse Parade Society, presented the prizes and had a kindly word for all the drivers and those members of their families who accompanied most of them.

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"We do not need any cross," said Mr. T. Forshaw (past president), who presided at the annual meeting of the Shire Horse Society, at Derby, "we can get a good horse without." He was moving the adoption of the report of the Council and statement of accounts, and commenting on a suggestion for amalgamation of the Shire Horse and Clydesdale Societies. The idea was flattering to the Shire, said Mr. Forshaw, but he thought it was better for the breed that the Shire Horse Society should stick to what it was trying to do. The Society was keeping its end up and doing very well at Derby. Derbyshire stood out as the best Shire-breeding county in England. Nearly all the breeders in the county were keeping to the pure Shire and, in view of that, it was fitting that the Society had agreed to ask the Duke of Devonshire to become president after Mr. H. T. L. Young.—*Farmer and Stock-Breeder.*

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

Correspondents should write as briefly as possible and letters should not exceed 350 words.

FOOT-AND-MOUTH DISEASE AND ARTIFICIAL INSEMINATION

Sir,—The recent outbreaks of foot-and-mouth disease, and the effects on the functioning of A.I. Centres, give those engaged in conducting Centres and in interpreting the Ministry's instructions, some food for thought.

I have no doubt that the Ministry of Agriculture's regulations, relating to such an event, have been drawn up by experts, after giving the subject careful consideration. I do not know if these decisions are based on scientific facts, that semen can be a means of disseminating the virus, or on the conjecture that it is a potential source of spreading infection, like other natural secretions. In my opinion milk is a more dangerous medium for carrying infection, and no stringent restrictions are imposed on its disposal, nor on its collection at farms. Dregs and rinsings of milk utensils and bottles are often added to feeding for pigs.

There are justifiable grounds for inseminators ceasing visits to farms in an infected area, but where a centre is situated in such an area not in close proximity to the infected place, I believe that it would be safe to use semen from the bulls at the centre for inseminations outside the infected area. Of course it is essential that the bulls receive a thorough clinical examination, with special emphasis on the temperatures, and if there is any suspicion of foot-and-mouth the matter be reported forthwith to the Ministry. No fodder, bedding, etc., should be drawn from the infected area. Nobody wishes to spread foot-and-mouth disease, entailing loss to the owner and taxpayer, but this loss must be balanced against the setback of the farmer's breeding programme, and the substantial loss of valuable milk supply to the country.

Another point that requires clarification is whether it is necessary to establish a temporary sub-centre outside the infected area. If car and insemination personnel are cut off from the centre rick yard and buildings, and no visits are paid to farms in an infected area, I cannot see that there is danger of conveying infection to the centre.

It is rather unfortunate that epidemics of foot-and-mouth are so prevalent at this stage of development of artificial insemination, as farmers will find it incumbent that they should retain bulls, many of which are of an undesirable type.

Yours faithfully,
KERRY O'SULLIVAN.

M.M.B. Cattle Breeding Centre,
Cheswardine.
March 13th, 1947.

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WHAT WAS IT?

Sir,—My query above refers to the recent outbreak of so-called "'flu" which attacked the horses in London and some of the large cities in England and elsewhere. In all my years of experience I have never seen an epidemic like it. Both my colleague, Mr. D. Reid and I, run one of the largest horse practices in London and we have discussed the outbreak with many practitioners in charge of large "studs": all of us were of the opinion that it was not influenza. It must be borne in mind that this epidemic happened during the "strike period" when the horses were off work and it was not as though the animals were subjected to inclement weather or debilitated.

The rapid spread of the disease was alarming at first, with temperatures ranging from 103° to 106°, but under treatment, in the majority of cases, soon dropped. No horse seemed immune. A strange feature of the outbreak was that there was very little loss of appetite, no staring of the coat or inflammation of conjunctiva, hardly any swelling of the legs and very little coughing or increased respiration—in fact, until a chart recording all temperatures was taken night and morning, to the casual view very little seemed the matter.

Now as to the aftermath—the many cases of purpura haemorrhagica that followed, during the outbreak. It was not at all unusual to have under treatment about a dozen patients with this disease. Most of these recovered under intensive treatment, but a few were dead within 24 hours, so rapid was its onset.

I am hoping that some of our clinicians or bacteriologists will be able to give the disease a name, for, frankly, I am puzzled. Finally, I should think the subject would provide a good clinical paper at one of our medical meetings.

Yours faithfully,
J. WILLETT.

1, Marylebone Road,
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March 14th, 1947.

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT, 1937 (PART IV).

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Fowl Pest	Parasitic Mange*	Sheep Scab	Swine Fever
March. 1st to 15th, 1947	5	14	1	—	—	—
Corresponding period in—						
1946	5	1	—	—	9	21
1945	5	14	—	1	13	56
1944	8	10	—	1	4	25
Jan. 1st to Mar. 15th, '47	15	77	3	1	13	10
Corresponding period in—						
1946	26	18	—	4	33	133
1945	27	51	—	3	29	229
1944	54	13	—	4	50	122

NOTE.—The figures for the current year are approximate only.
* Excluding outbreaks in Army Horses.